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CENTENARIES OF "FORTY-FIVE".

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Births in 1845.

ERNST ABBÉ, a German physicist (1845 to 1905), invented the condenser, two or three lenses concentrating the light beam reflected by the mirror through the object glass of the microscope. Abbé's name has been linked with Zeiss in a well-known blood counting apparatus. He also developed apochromatic objectives and compensating oculars (1886).

Sir Thomas Barlow (1845 to 1944), of London, who recently died in his hundredth year, was the "Grand Old Man" of British medicine. In 1883 appeared his well-known description of scurvy-rickets, the scurvy being (he considered) an essential, the rickets a variable disease. The condition is called after him, Barlow's disease.

Thomas John Barnardo was born in Dublin on July 4, 1845, and died on September 19, 1905. He was an Irishman of Spanish descent on the father's side, of Quaker stock on the mother's. He disliked school and was glad to leave it for a business career. Later he was attracted by the mission field in China, and studied at the London Hospital and later at Paris and Edinburgh, and he became a Fellow of the Royal College of Surgeons of Edinburgh. The epidemic of cholera in 1865 brought him to the East End of London. In 1866, when he was a teacher at a ragged school there, he ran across a boy of ten, grimy and in tatters, whom he found to be an orphan and homeless, and with this boy as a guide found many others similarly destitute. This experience decided him to stay in London and devote himself to helping these waifs and strays. Thus he became a missionary to the East End of London rather than to the eastern parts of Asia. He made an appeal for these homeless boys which attracted the attention of Lord Shaftesbury among others. Many seriously doubted Barnardo; but during a night visit by Shaftesbury over seventy of such boys were seen.

Beginning in Mile End Road above a public house, Barnardo entered on his mission. Later he bought two cottages, a sort of community centre. It was his desire to look after the health of these children that caused him to qualify in medicine. In 1879 the growth of the work made him set up a new home at Stepney Causeway. Here his boys' clubs taught the lads activities, especially activities which would help them to earn a living. The death of a boy, starved and homeless, who had been turned away for lack of accommodation, caused him to put up his famous notice: "No destitute child ever refused admission." No restrictions were made as to age, sex, religion or nationality—"the ever-open door". Later he began a girls' village home at Barkingside, a garden city, where later he was buried. Before Barnardo died, over 60,000 children had been cared for and fitted for a career in life, and over 7,000 were in residence—"the biggest family on earth". At first many attacks were made on the homes; but a public inquiry completely justified his efforts. Parents who had abandoned their children would claim them later under the existing law. This led to the *Barnardo Act*, 1891, which gave him complete powers. Emigration to Canada and other dominions has been a strong feature, and the work has extended to many great cities in Great Britain and in the dominions; it includes hospitals and homes for cripples, and it still continues. Few physicians have been of greater benefit to the fatherless than Barnardo, or have served their generation with such single-hearted devotion.

Van Beneden (1845 to 1910) showed in 1887 that normally a definite number of chromosomes occurred in each cell of a given species (48 in man).

Paul Berger (1845 to 1908), a French surgeon, carried out the interscapulo-thoracic amputation called after him and brought in the suture of the fragments in transverse fracture of the patella.

Caesar Peter Moeller Boeck (1845 to 1917), a Norwegian physician, at Kristiania in 1899 described the syndrome of benign sarcoid (Boeck's sarcoid) affecting the head and upper limbs, also called the Besnier-Boeck disease.

Camillo Bozzolo (1845 to 1920), an Italian physician, noted pulsating vessels in the nasal mucous membrane in thoracic aneurysm (Bozzolo's sign). He introduced thymol as a vermifuge in the anæmia due to *"Tanchilostomase"* (1879). Griesinger had drawn attention to this result of hookworm infestation in 1854, and Grassi *et alii* had shown how to diagnose the disease by fæcal examination during life (1878).

William Arthur Brailey (1845 to 1915), London ophthalmologist, invented the operation for stretching the supratrochlear nerve to relieve pain in glaucoma.

Sir Henry Butlin (1845 to 1912), of Saint Bartholomew's Hospital, London, described the tongue in chronic superficial glossitis as looking as if covered with white paint that had hardened, dried and cracked.

Henry Edward Clark (1845 to 1909) operated successfully on a patient suffering from intestinal obstruction due to volvulus—the first case in Britain (February 20, 1883).

Henry Radcliffe Croker (1845 at 1909) published his great text-book on diseases of the skin in 1888.

Alexander Crombie (1845 to 1906), of Edinburgh, was for a time editor of *The Indian Medical Gazette*. He investigated sprue and hill diarrhœa. Later he lectured at Middlesex Hospital on tropical diseases.

Alexander Dyce Davidson (1845 to 1886) was an ophthalmic surgeon and lecturer on *materia medica* at Aberdeen. While delivering a lecture to his class he was struck down with a cerebral hæmorrhage and died within an hour.

Clement Dukes (1845 to 1925), of St. Thomas's Hospital, was for thirty-seven years medical officer at Rugby School. His "Health in School" (1886) is a milestone in the development of school hygiene. His ideas on diet, work and overwork, holidays and sleep are of fundamental value, and are of special value in adolescence. In 1900 he discussed the confusion which had arisen in the giving of the name rubella. He identified a "fourth disease", which did not produce immunity to scarlet fever, measles or rubella. Dukes's disease may be the same as a form of rubella with a scarlet rash reported by Nils Filatov in 1887. Dukes married twice, and had a family of five sons and four daughters.

Maurice Georges Debove (1845 to 1920), a Paris physician, invented a large tube for gastric lavage marked at 45 to 50 centimetres from its eye. When the mark is at the teeth, the end is in the stomach. Debove's membrane is the fine layer between mucous epithelium and basement membrane in the air passages and the intestine. Debove's disease is splenomegaly.

Louis Adolphus Duhring (1845 to 1913) wrote the first American textbook on dermatology. In 1884 he described *dermatitis herpetiformis*—a group of eruptions which lie between urticaria and toxic erythema, on the one hand, and pemphigus on the other.

Carl Anton Ewald (1845 to 1915), of Berlin, wrote on disorders of digestion, and performed the first excision of the rectum for cancer. He used a tube to obtain stomach specimens and designed a "test breakfast". He edited the *Berliner klinische Wochenschrift* for twenty-six years up to 1907. He is said to have been an authority on forestry.

Alphonse Fochier (1845 to 1903), a French gynæcologist, used an artificial abscess produced by the subcutaneous injection of turpentine—fixation abscess—in certain infectious processes.

Sir William Richard Gowers (1845 to 1915), of London, in 1878 invented the well-known hæmoglobinometer (improved by Haldane in 1901). In 1876 he had described the changes in the retinal vessels in Bright's disease, and in 1881 he wrote on epilepsy. As professor of clinical medicine at University College, London, he specially studied neurology, and between 1886 and 1888 brought out his manual of diseases of the nervous system in two volumes, his greatest work. In this he described Gower's tract and ataxic paraplegia. He noted local panatrophy. His name is linked with Horsley's in the successful removal of a spinal tumour in 1888. In 1897 he wrote a valuable work on medical ophthalmology, beautifully illustrated by himself. He was interested in shorthand, and founded the Society of Medical Phonographers.

Rudolph Eduard Kulz (1845 to 1895), a German physician, isolated β-oxybutyric acid in 1887. After fermentation of the sugar in diabetic urine, the plane of polarized light turns to the right (Kulz's test). Kulz also noted strongly refractive granular renal casts at the onset of diabetic coma, the so-called coma casts.

Hans Kundrat (1845 to 1893) described Kundrat's lymphosarcomatosis in 1893.

Louis Théophile Joseph Landouzy (1845 to 1917), a Paris physician, was the first (1883) to describe leptospirosis (bilious or hepatic fever), now usually called Weil's disease. Weil clearly distinguished it from other forms of jaundice (1886). The Landouzy-Déjérine type is a progressive atrophy of muscles first seen in the face, shoulders and arms of infants. The Landouzy-Grasset law states that in lesions affecting one cerebral hemisphere the head turns to the side of the spastic muscles, but to the side of the lesion if the muscles are flaccid (paralysis). Landouzy wrote a medical dictionary (1902).

Charles Louis Alphonse Laveran (June 18, 1845, to May 18, 1922) was born at Algiers; he was a graduate of Strasburg and later became an army surgeon at Algiers. At Constantine, on November 6, 1880, he first realized that certain pigmented masses in the red corpuscles in malaria were part of the life history of the parasite. This gave the stimulus to Manson, Ross and others, which led to the thorough investigation of the life history of malaria. Between 1884 and 1898 Laveran published four treatises on paludism, as well as works on military medicine (1875) and military hygiene. With Mesnil he published at the Pasteur Institute in 1904 a treatise on trypanosomes and trypanosomiasis. He was a devoted clinical laboratory worker and received the Nobel Prize in 1907.

Michael Ludwig Leichtenstern (1845 to 1900), a German physician, noted the sign in cerebro-spinal meningitis—the patient suddenly and violently draws back with a loud cry when one of the bones of his extremities is gently tapped. Leichtenstern also noted *encephalitis hæmorrhagica*.

Ludwig Lichtheim (1845 to 1928) noted cases of aphasia in which, though the patient could not speak, he could yet indicate with his fingers the number of syllables in the word (Ludwig's sign) (subcortical sensory aphasia, 1885).

Moritz Litten (1845 to 1907), of the Charité Hospital, Berlin, showed how, by the use of light from ahead only, the stripped chest of the patient lying on his back being observed, a narrow shadow moved with respiration from the seventh to the tenth rib if the diaphragm was contracting and descending normally (Litten's sign).

Charles McBurney (1845 to 1913), discussing in a paper early operative interference in perforated vermiform appendix (1882), described McBurney's point; the seat of greatest tenderness determined by the pressure of one finger lies exactly between an inch and a half and two inches from the anterior spinous process of the ilium on a straight line drawn from that process to the umbilicus. McBurney's incision in appendicitis was made parallel to the fibres of the external oblique muscle one or two inches from the anterior superior iliac spine.

Friedrich Sigmund Merkel (1845 to 1919) wrote *"Die Anatomie des Menschen"* at Wiesbaden in 1914, and made special studies of the connective tissues and noted Merkel's touch cells and muscle.

Ilia (Elias) Metchnikoff (1845 to 1916) was born in Panassovka, Russia. His mother was a Jewess. His father lived beyond his means, and the mother had a hard time. As a boy Metchnikoff was described as delicate and both spoiled and neurotic. In spite of trouble with his eyes he became an enthusiastic microscopist at the University of Kharkov, from which he graduated with a gold medal at the age of

nineteen years. His first scientific paper on *Vorticella* appeared when Metchnikoff was eighteen years old. From Kharkov he went to Germany and then to Italy, following up biology and pathology. Returning to Russia in 1867, he took up the chair of psychology at Odessa at the age of twenty-two. Soon after he began to teach biology. The maltreatment of friends who for political activities had fallen foul of the Czarist *régime* brought about severe depression, and when his first wife died of tuberculosis of the lung in 1873 he deliberately took an overdose of morphine, which fortunately did not prove fatal. To make a living he became anthropologist to the Zemstvo local government medical organization, Astrakhan. Here he was immersed in veterinary work, studied comparative embryology, and with further experience of epidemics realized the value of vaccine therapy. In 1881 he was forced to resign from the University of Odessa, because he stated that even if a man introduced a new idea he was regarded as a revolutionary. This was followed by a second suicidal attempt, in which he tried to give himself relapsing fever. The family of his second wife, Olga, were now able to assure him independence, and he migrated to Naples. In 1884 he published an account of phagocytosis in *Daphnia*, showing that the phagocytes could engulf bacteria and generally act as scavengers. The study of this type of happening in cell activity took up the next twenty-five years of his life. In 1888 he entered the Pasteur Institute on a meagre salary; but the contact of Roux and Metchnikoff with a Jewish banker, Osiris, led later to the endowment of the Pasteur Institute with 40,000,000 francs. In 1901 Metchnikoff's study appeared on immunity in infectious diseases showing specific antibacterial activity. Here he built on the foundation of modern immunology Pasteur had laid, and showed the ability of amœbold cells from the mesodermic layer to ingest foreign matter including bacteria. His contributions to science include studies in inflammation, vaccine therapy and immunology. He successfully inoculated monkeys with syphilis, and shared with Ehrlich the Nobel Prize for research into the causes, prevention and therapy of syphilis. His studies of old age phenomena, such as greying of the hair, led him to attribute these changes to toxic effects of intestinal organisms. In eastern Russia he had been struck by the long life of many who live on koumiss, and he held the idea that by changing of the intestinal flora with the lactic acid organism the longevity of the human being could be ensured. The first World War hit him hard. Metchnikoff died of *angina pectoris* on July 16, 1916, at the age of seventy-one years. He held that mankind was able to correct the incompleteness of Nature by means of science.

Charles Karsner Mills (1845 to 1931), of Philadelphia, started neurological wards in the Pennsylvania General Hospital in 1877. In 1900 he noted unilateral progressive ascending paralysis (Mill's disease), and in 1906 unilateral descending paralysis (first description). He discussed epilepsy and other chronic convulsive diseases in 1881 and macular hemianopsia in 1908.

Osip Osipovich Moczutkowsky (1845 to 1903) demonstrated the infectiveness of relapsing fever by inoculating healthy subjects with the blood from patients suffering from the disease, thus setting up the fever in them. The specific character of the causative agent was thus shown (1879).

Henry Moon (1845 to 1892), a dental surgeon at Guy's Hospital, London, described the smaller dome-topped first molar in congenital syphilis. The crown surface is of irregular pattern instead of having proper cusps.

William James Morton (1845 to 1920), American neurologist, used electrical discharges from a Leyden jar, which was continuously recharged with the help of a static machine.

Edward Nettleship (1845 to 1913), of England, early in his life was a professor of veterinary surgery, but he gave this up for medicine, specializing in ophthalmology. In 1919 he published the pedigree of a patient with hereditary night-blindness, which he traced for ten generations, involving 2,116 persons. In 1869 he described the brown patches in chronic urticaria, now called *urticaria pigmentosa*—"Nettleship's disease".

A. Paci (1845 to 1902), of Pisa, first proposed the "bloodless" reduction of congenital dislocation of the hip, which was associated later with Lorenz's name; Lorenz relied on vigorous manhandling of the adductors to fix the pelvis and femoral heads in a frog position by means of plaster in cases of bilateral dislocation.

A curious sidelight on quackery is given by the life of D. D. Palmer (1845 to 1913), who was born in Canada and migrated to the United States of America at the age of twenty years. We are told that "he was educated for and followed the vocation of magnetic healing". His son, P. J. Palmer, born in 1882, studied under his father from the age of twelve years and at the Palmer School of Chiropractic, District of Columbia. Chiropractic is defined as "a philosophy, science and art of things natural and a system of adjusting sublucated vertebræ of the spinal column by hand for the elimination of the cause of disease and for the restoration of health".

Victor Vasilyevick Paschutin (1845 to 1901) described in 1871 the ferments acting on the sugars and changing them into dextrose.

F. Petersen, of Kiel, born in 1845, invented the rubber bag introduced into the rectum to push up the bladder as an aid in suprapubic cystotomy.

Wilhelm Friedrich Philipp Pfeffer (1845 to 1920), of Leipzig, the son of a pharmacist, helped to establish modern plant physiology. He carried out investigations into osmotic pressure (1877). He showed this to be directly related to the concentration of the solute and to the absolute temperature. He was also interested in the use of carbon dioxide by green plants.

Pins (1845 to 1913), an Austrian physician, described in pericardial effusion the disappearance, with the patient in the knee-chest position, of the syndrome of dulness, diminished vocal resonance and diminished vocal fremitus with a distant blowing sound and occasionally a fine râle heard at the back of the chest below and on the left.

August Rauber, born in 1845, a German anatomist, described the layer of the trophoblast in the blastocyst covering the formative cell mass.

Samuel Doty Risley, born in 1845, a Philadelphia ophthalmologist, brought in a prism with circular base rotating in a graduated metal frame used to test ocular imbalance.

Andrew Rose Robinson (1845 to 1920), a New York dermatologist, in 1884 described hydrocytoma (Robinson's disease).

Wilhelm Conrad Röntgen was born on March 27, 1845, and died on February 10, 1923. Testing a Crookes tube wrapped in black paper in order to cut out any visible glow, he tried to find out whether the electrical discharge through a gas gave off any invisible radiation. At that time barium platinocyanide had been used to pick up by its fluorescence and thus detect invisible rays in the spectrum analysis of sunlight. Röntgen found that, though the light from the discharge through the gas was quite cut off, the fluorescent crystals glowed brightly. As Edgar Smith puts it: "On that day a light which never was on land or sea was observed." The discovery was no accident, but rather the result of intelligent curiosity, the inquiry of a mind that is prepared. Others had noted fogging of photographic plates near to an active Crookes tube, but all they did was to put their plates somewhere else. Truly "*de minimis curat scientia*"—trifles indeed make for scientific perfection. Röntgen then found that new rays affected the photographic plate, and took a photograph through a thick wooden door. He did not fail to notice that a strip attached by white lead gave a shadow on the negative. Few discoveries have been so rapidly applied. The discovery was reported in a paper read before a medical society (Würzburg, 1895), "*Über eine neue Art von Strahlung*", and medical enthusiasm gave it a flying start all over the world. Thus began a new speciality in medicine, which has proved increasingly valuable in the diagnosis and treatment of disease and in the study of the anatomy of living things.

Mary Ann Dacomb Bird Scharlieb was born on June 18, 1845, at London, and died on November 21, 1930. After

acting as midwife in Madras she decided to study medicine at Madras (1875). In 1878 she returned to England, placed her children at school, and qualified in 1882 at the London School of Medicine for Women. In Madras, under vice-regal patronage, she set up the Queen Victoria Hospital for Women of all classes of Indians, and was joined by Dr. (Miss) Pailthorpe. In 1888 Mary Scharlieb was back in England to become England's first woman doctor of medicine. In 1892 she was gynæcologist of the Royal Free Hospital and gained the degree of master of surgery in 1897. She took a lifelong and deep interest in missionary effort in India, and by her own example and personality greatly advanced the medical education of women. In 1926 she was created a Dame of the Most Excellent Order of the British Empire.

Isidore Strauss (1845 to 1896) brought in the test for and diagnosis of glanders.

Robert Lawson Tait (1845 to 1899), of Edinburgh and Birmingham, in 1879 in a paper in the *British Medical Journal* claimed that he had, on August 1, 1872, carried out the removal of normal ovaries for non-ovarian conditions. This was sixteen days before Battey, who published the first description of the operation in 1872. In February, 1881, Lawson Tait reported the first case of oophorectomy, and in 1884 the results of operation on ruptured tubal pregnancy. The first successful operation was carried out on March 1, 1883. In 1884 came his summary of conclusions from one thousand cases of abdominal section. In 1888 his lectures on ectopic pregnancy and pelvic hæmatocele were published. In the period from 1891 to 1892 he brought in his flap-splitting method for operating on rectocele and invented the Staffordshire knot for the ligature of pedicles. Our own W. J. Stewart McKay has written a most interesting life of Lawson Tait, who may be looked on as the pioneer of asepsis.

J. Knowsley Thornton (1845 to 1904), an English physician, drew attention to paroxysmal attacks of severe pain in the side in renal colic (Thornton's sign).

George Turner (1845 to 1900) gave in *The Glasgow Medical Journal* the first description of Tokelau ringworm (*Lafa tokelau*, 1869).

Carl Weigert (1845 to 1904) at Munsterberg in 1871 showed that in hæmorrhagic smallpox cocci would stain with carmine. In 1875 he demonstrated the presence of organisms in the tissues of a newly born child, using an aniline dye methyl violet, and made valuable contributions to the differential staining of nerve tissues. In 1880 in a paper on pernicious anæmia, Weigert gave the first description of infarction in the heart. He called attention to the tendency of repair after injury to be in excess of the amount needed.

Anton Weichselbaum (1845 to 1920) studied the causative agent of acute cerebro-spinal meningitis (1887) and discovered the intracellular diplococcus. He wrote a treatise on pathology.

John Eliot Woodbridge (1845 to 1901), an American physician, brought in the method of treating enteric fever by intestinal antisepsis and elimination. He used small frequent doses of calomel and various antiseptics.

John Allan Wyeth (1845 to 1922), a New York surgeon, introduced the operation for bloodless amputation at the hip joint, the vessels being controlled by a strong elastic tube held in place by long needles transfixing the thigh above the joint.

Of the items of scientific interest in 1845 (E. Scott) may be noted the birth of Lippmann, the inventor of colour photography (1891); the birth of the inventor of the steam turbine, de Laval; and the birth of the inventor of the internal combustion engine, Karl Benz (1845 to 1929), whose invention transformed the conditions of medical practice in this century.

Events in 1845.

On October 1, 1845, appeared the original description by John Hughes Bennett (1812 to 1875) of leuchæmia, in "Case of Hypertrophy of the Spleen and Liver in which Death took Place from Suppuration of the Blood". This is the first disease of the blood described as an entity, and it brought into being a new branch of clinical medicine. Only six weeks later came Virchow's report of a post-mortem examination in a similar case; he gave to the condition the name of leuchæmia (white blood). Hughes Bennett graduated at Edinburgh and later worked in Paris and in Germany. He was the first to teach the systematic use of the microscope in clinical studies. In 1841, so impressed had he been with the high esteem in which old Scottish fishwives held the oil from the liver of deep-sea fishes in the treatment of ailing children, that he tried it on his marasmic out-patients at Edingurgh, and from this experience wrote a treatise on cod liver oil as a therapeutic agent. This is the real introduction of this remedy, though Percival had used it sixty years before. By a masterly study (1865) of the treatment of pneumonia, in which he showed that blood letting was associated with a death rate of 33%, as against a rate of 3% in restorative treatment in 129 cases, he more than anyone else in Britain helped to convert the lancet into a museum exhibit. It drove home G. W. Balfour's thesis in his "Hæmatophobia" (1858). Early in 1845 Bennett had published an important paper on recovery from phthisis by fibrosis and calcification based on 500 post-mortem examinations. In 1842 he had identified the aspergillus fungus in a clinical case and so was a pioneer in mycology. As professor of physiology (1848 to 1874) he was an inspiring teacher of world-wide fame, especially in clinical physiology and clinical pathology.

James Henry Bennet (1816 to 1891), an English obstetrician, wrote in 1845 a treatise, "Inflammations of the Uterus", on conditions affecting the neck of the uterus. In this he distinguished benign from malignant tumours of that organ. He noted Bennet's corpuscles—fatty cells occurring in ovarian cysts.

Golding Bird (1814 to 1854), of Norfolk, wrote on oxaluria and urinary deposits (1844). In 1845 he worked out the formula that the last two figures of the specific gravity of a specimen of urine give approximately the number of grains of solids to the ounce. He was one of the first to use static electricity in amenorrhœa.

Ernst Wilhelm von Brucke (1819 to 1892), of Berlin, professor of physiology at Vienna, studied the luminosity of the eye in animals, and using a tube passed through a candle flame was able to look at the fundus (1845). His book on artistic anatomy (1892) is highly praised.

Gurdon Buck (1807 to 1877), a New York surgeon, reported his operation for right-angled ankylosis of the knee joint by a wedge taking in the whole joint from the front (1845). His name is given to the fascial sheath of the penis and to the well-known extension apparatus for use in fracture of the thigh, in which the weight is attached to a cord which runs over a pulley and is fastened to the leg by broad bands of adhesive plaster.

Andrew Buchanan (1798 to 1882), of Glasgow, wrote "On the Coagulation of the Blood and Other Fibriniferous Liquids" (1845). Buchanan extracted and named fibrin ferment, and showed that it could clot various body fluids. He found it in the buffy coat of the blood and in the lymphatic glands and other tissues.

Robert Wilhelm Bunsen, of Göttingen, Marburg and Heidelberg (1811 to 1899), completed in 1845 an eight-year investigation into cacodyl compounds fundamental in the study of compound radicals. He is well known for his improved methods and apparatus, such as the Bunsen burner, battery and greasespot photometer.

Adolph Carl Peter Callisen (1787 to 1866), a Danish surgeon, completed in 1845 his 33 volumes of an international medical bibliography, "*Medicinisches Schriftsteller-Lexicon*", "one of the most wonderful things ever achieved by a single man" (Garrison).

Johann Friedrich Dieffenbach (1792 to 1847), of Königsberg, a leading plastic surgeon, wrote a treatise on operative surgery (1845 to 1848). His account of the suffering in vesico-vaginal fistulæ and of his unsuccessful efforts at treatment by every known method is a classic (1845). Sims, however, had that very year begun to work on a technique which proved effective.

Frans Cornelis Donders (1818 to 1889), of Tilburg, Holland, professor at Utrecht, is chiefly known for his

extensive researches on refractive errors. In 1845 he wrote an important paper on metabolism as a source of energy in animals and plants. He also became editor of the *Nederlandsch Lancet*.

James Esdaile (1808 to 1859), born at Montrose and graduate of Edinburgh (1828), began in 1845 to try hypnotism as a basis for painless operations on Hindu convicts. James Braid in 1841 had already explored the technique of mesmerism. Elliotson had already tried it in England in 1843 and earlier. Whatever success he had in soothing his patients was nothing to his success in stirring up vigorous opposition amongst his colleagues. Esdaile found the hard-headed Scot far less susceptible than the more excitable Hindu.

Sir William Fergusson (1808 to 1877), of Prestonpans, founder of conservative surgery, began to substitute excision of joints for amputation. In 1845 he excised the head of the femur for incurable joint disease.

John Goodsir (1814 to 1867), of Fifeshire, son and grandson of doctors, brought out his anatomical and pathological observations (1845). Virchow dedicated his famous "Cellular Pathology" to Goodsir, who in his work suggested the cell theory. Goodsir first noted *Sarcinæ ventriculi* (1865). He was appointed professor of anatomy at the end of the Monro *régime*. The three Monros had occupied the chair from 1720 to 1845—about 126 years.

Wilhelm Griesinger (1817 to 1868), of Stuttgart, opposed the moralistic theory of insanity in his book on the pathology and therapy of the psychic disorders (1845), which was the leading textbook of a generation and based on clinical evidence. He was the first in Germany to give up physical restraint in treatment of the insane, and first recommended the organization of psychiatric clinics at general hospitals. He cleared up (1886) the mystery of tropical chlorosis by showing hookworm to be its basis.

Heinrich Haeser (1811 to 1884), of Weimar, wrote "*Lehrbuch der Geschichte der Medicin und der Volkskrankheiten*" (1845). This is an outstanding work on the history of medicine, "an unrivalled storehouse of knowledge", "the most scholarly and thorough-going medical history of modern times". He also wrote on the history of epidemic diseases.

Justus Friedrich Karl Hecker (1795 to 1850), a medical historian, published "*Kinderfahrten eine historisch- pathologisch Skizze*" (1845). He also studied the great epidemics in the Middle Ages (1865). He had already (1825 to 1835) edited the "*Literarische Annalen der gesammten Heilkunde*" (Berlin).

Ferdinand von Hebra (1816 to 1880), of Brunn (Moravia) and Vienna, a famous dermatologist, set out a classification of skin diseases based on their pathological anatomy and histology (1845).

Thomas Henry Huxley (1825 to 1895), of Ealing, while still a medical student (1845), drew attention to the layer of cells in the sheath of the hair root (Huxley's layer). On graduation that year he joined the Royal Navy as a surgeon.

Abraham Hartog Israels published his historical study of Talmudic gynæcology.

Pavel Ivanovitch Kovalevski, a Russian embryologist, in 1845 described the neurenteric canal in the embryo.

Adolf Kussmaul (1822 to 1902), of Graben, near Karlsruhe, described the colour appearances in the human fundus (1845). He made many additions to both clinical diagnosis and treatment.

Peter Mere Latham, a London physician, published a volume on heart disease (1845).

Johann Benedict Listing (1808 to 1882) brought out a review of physiological optics (1845).

William MacKenzie (1791 to 1868) in 1845 wrote a paper on the vision of objects on and in the eye. This was an early study of catoptrics. Mackenzie was at this time perhaps the most distinguished ophthalmic surgeon in the United Kingdom, and had in 1824 helped to found the Glasgow Eye Infirmary. He was first to give a clear clinical picture of glaucoma and of sympathetic ophthalmitis.

Jacques Gilles Thomas Maisonneuve (1809 to 1877), of Paris, in 1845 introduced the hair catheter for internal urethrotomy.

Louis Mialhe, of Paris, isolated ptyalin in saliva.

William Moon, of Brighton, introduced (1845 to 1847) Roman line types still used for reading by the blind, though the Braille alphabet (1809) is used everywhere.

Charles Morehead (1807 to 1882), a doctor of medicine of Edinburgh (1828), was in 1845 appointed first principal and professor of the Grant Medical College, Bombay. Later he became professor of military medicine at the Army Medical College, Fort Pitt.

Frederick John Mouat (1816 to 1897), an Edinburgh graduate, translated the London Pharmacopœia into Hindustani (1845). After thirty years in India he returned to England to become a medical inspector under the Local Government Board.

Johannes Müller (1801 to 1858), of Coblenz, was a great physiologist and naturalist. He studied the structural relations of ganoid and myxinoid fishes for ten years, and in 1845 reported on the slimy secretions of the club cells.

Sir Richard Owen (1804 to 1892) completed his great work on the mammalian teeth, "Odontographia" (two volumes between 1840 and 1845). He was then the Hunterian professor at the museum of the Royal College of Surgeons. His study of the morphology of the teeth led him into palæontology. The story goes that after reflecting long and lovingly over a specimen of a single fossil tooth, which he carried about with him constantly in his pocket, he one day drew a strange picture of an animal the like of which did not exist on land or sea. This phantasm was one of the jokes of the season; but when not long after a fossil skeleton came to light in South America, corresponding to this weird creation and with identical teeth, the last laugh was with Owen. It drew attention to the teeth as typical of the animal, and decided, by its food habits, its methods of attack and defence and its size.

Perrin wrote on intermittent hydrarthrosis at Paris in 1845.

Robert Remak (1815 to 1865), a Polish Jew, first defined the four leaf-like embryonic layers of von Baer as three—ectoderm, mesoderm and endoderm—in 1845, and having isolated on his own person the fungus *Achorion*, named it after Schönlein (1845).

Julius Rosenbaum (1807 to 1874) published his "*Geschichte der Lustseuche in Alterthume*" at Halle (1845), a study of the early history of syphilis.

John Kearny Rodgers (1793 to 1851), a New York surgeon, was the first (1845) to tie the left subclavian artery within the scaleni for aneurysm, but with a fatal result. Not till 1892 was this operation successfully carried out by Halsted. Rodgers, in 1827, successfully wired an ununited fracture of the humerus.

Francis Rynd (1801 to 1861), of Dublin, made possible hypodermic injections by an invention of his own, a gravity device, designed to introduce fluid into nerves in neuralgia (1845). Alexander Wood (1817 to 1884) is said to have been the first to use the hypodermic needle (1853), and independent of Pravaz. The syringe and needles he used had been made for the injection of nævi with perchloride of iron.

Carl Theodor Ernst von Siebold (1804 to 1885), of Würzburg, a practising doctor for years, went over to zoology, and in his biennial report on helminthology (1845) classified hookworm as a strongyloid. Later he wrote on tæniæ and hydatid. Bilharz was his pupil (1845). Siebold named unicellular organisms "protozoa".

Sir John Struthers (1823 to 1899), of Aberdeen, wrote his thesis on muscles and nerves of the eyeballs and their derangement in strabismus (1845). He later took up anatomy and did much for medical education (1889).

Verga (1811 to 1895), an Italian anatomist, made a study of the madness of Tasso (1845), and his name is linked with the ventricle of Verga and the ossicles of Verga. He founded the Italian archives for nervous and mental diseases, and did much for the improvement of mental hospitals.

Rudolf Virchow (1821 to 1902), of Pomerania and Berlin, when prosector at the *Charité* (Berlin), described leuchæmia almost at the same time as Hughes Bennett. He had been the first to see and define leucocytosis. (William Hewson, in 1771, first saw leucocytes and realized the presence of fibrinogen.)

Philipp Franz von Walther (1782 to 1849) in 1845 gave the first description of corneal opacity.

Eduard Friedrich Wilhelm Weber (1806 to 1871) and Ernst Heinrich Weber (1795 to 1878), two of three famous brothers, in 1845 discovered that stimulation of the vagus slowed the action of the heart and was inhibitory, not excitatory, and tracked down the location of the vagal nucleus. E. F. W. Weber had already with W. E. Weber written his great work on human movement. He also is responsible for Weber's test. With a vibrating tuning fork on the centre of the vertex, the sound is equal in both ears; but if one ear is stopped, the sound is louder on that side. In deafness of the internal ear (or eighth nerve) the sound is not heard on that side.

Various Happenings in 1845.

In 1845 Bowman and Todd studied canaliculi in bone.

Bergmann showed that resting metabolism was proportional to bodily area.

Digitalis was isolated in its least toxic and purest form, amorphous digitalin, by Homolle (1808 to 1875) and Quevenne, of Paris, and this again was replaced in the same year by the crystalline product of Kasmann and Merck, later improved by Nativelle (1872).

The kinetic theory of gases was brought forward by Waterston.

Joule demonstrated his paddle-wheel experiments on the energy equivalent of heat.

Fadaday (September 13, 1845) used magnetic force to polarize light and reported diamagnetism.

Iron screw steamers were built.

The slough murderer Tawell was arrested—the first case in which the electric telegraph was used; a contrast in speeds.

Theodor Schwann was awarded the Copley Medal of the Royal Society, and T. S. Beck described the nerves of the uterus.

An orthopædic hospital was founded at Prague.

"Phossy" jaw appears first to have come into notice in 1845.

The Scottish *Poor Law Act* dates from 1845, and Sir John McNeill (1795 to 1883), an Indian medical veteran, was appointed first chairman under the act. He was the author of books on Russia in the east and on Persia and Afghanistan, written during his twenty years in the Bengal medical service.

The Sydney Dispensary, which had cared for the sick poor since 1826, transferred its activities to the south wing of the military hospital, unused since 1843, on July 3, 1845. From the point of view of continued function, this appears to be the true birthday of the Sydney Hospital. The first members of the staff, elected on March 27, 1845, were: Dr. John Macfarlane and Dr. George Fullarton, physicians; Charles Nathan, F.R.C.S., and Dr. Farquhar McCrae, surgeons; Hugh Houston, resident surgeon and apothecary; district surgeons, W. Houston, T. Phillips, S. Maberley and R. W. Neilson; matron, Mrs. Baxter. Not till March, 1848, was the main building, used by the Convict Hospital, vacated, and then the infirmary exchanged the south wing for the present site. The district surgeon's, out-patient and dispensing departments continued on the old site, attending to pauper sick. The first hospital, in charge of surgeon John White and assistant surgeons Balmain, Arndell and Considen, was erected in George Street North in February, 1788. It was reerected under Governor Hunter, Balmain in charge, near the site of the Argyle Cut in 1796. Governor Macquarie set aside the present site, and D'Arcy Wentworth, as principal surgeon, called for tenders for the building in 1810. The foundation stone was laid on October 30, 1811, and in 1816 the hospital was open for patients under D'Arcy Wentworth and William Redfern. It was maintained by the Crown for the treatment of convicts, merchant seamen, civil officers of the Crown and poor free settlers. Transportation ceased finally in 1841. The south wing was handed over to the Sydney Dispensary in 1843, and all patients were withdrawn on March 28, 1848, when the dispensary, already installed in the south wing, took over the main building. The present main buildings date from 1894. The dispensary, wiped out in 1881, was the dispensary put up by Bowman in 1828. Pictures and plans about 1872 show the south wing abutting on the Mint.

Deaths in 1845.

Elizabeth Fry (*née* Gurney) was born on May 21, 1780, and died on October 12, 1845. Her father was a Norwich banker; her husband, Joseph Fry, was interested in East Indian trade. She was born and bred in the Quaker tradition. Her period was one when large families were common. She herself was the fourth in a family of twelve, and between the ages of twenty and thirty-six years she had eleven children under the kindly supervision of Dr. Sims as obstetrician. One child died at the age of four years; the rest grew up to maturity, and most of them reached a ripe old age. No doubt Elizabeth Fry had plenty of domestic help, but in these days when so many seem to think more than two children a burden and a handicap to self-development, it is worth recording that Elizabeth Fry, with her family of ten children, stands unsurpassed among the noblest women of our race. Her life work in prison reform, in education of the young and in nursing, remains for ever a milestone in the social progress of mankind.

Two links between Elizabeth Fry and Australia are of interest. At Kaiserswerth, near Düsseldorf, on the Rhine, failure of the silk mill had meant ruin to its people. Theodor Fliedner, its pastor, sought help in Holland and England. In London he met Elizabeth Fry, and was immensely impressed. He decided to take up similar work in criminal reform. After a second visit in 1834, he and Frau Fliedner began to take up other interests of Elizabeth Fry—schools and care of the sick. In 1837 they added an infant school, a training department for teachers and a hospital in which to train hospital nurses. They were delighted when Mrs. Fry came in person to see their work in 1840. That year she had set up a nurses' training home in London. The wife of her son, Sam Gurney Fry, daughter of Dr. Pendleton, acted as organizer. The trainees were respectable women of the "lower class" like Nurse Rooke, pictured in "Persuasion" by Jane Austen—a great improvement on the "Sairey Gamp" type. Florence Nightingale included several "Fry" sisters in her Crimean band. Early in 1845 a momentous meeting occurred between Florence Nightingale and Elizabeth Fry, when probably the former heard of the chance for training which Kaiserswerth offered. In 1850 she began her training there. In 1869 Miss Lucy Osburn and her "Nightingale" nurses arrived at the Sydney Hospital by the arrangement of Henry Parkes. They soon transformed the hospital work, and modern hospital nursing practice in Australia derives its origin direct from Florence Nightingale.

In the spring of 1819, Mrs. Elizabeth Fry received a letter from the Reverend Samuel Marsden, chaplain at Parramatta, New South Wales. For twenty years he had appealed to the authorities for barracks to provide a loaf of bread and a bed to lie on for women arriving on transports. Finally he thought of Mrs. Fry, who had the ear of England. Peremptory instructions were sent to the Governor of New South Wales, and Mrs. Fry was informed that the barracks were already being built. After this the women after disembarkation were taken up by boat to the new "factory" at Parramatta. In 1836 a member of Mrs. Fry's ladies' committee for Newgate found 700 women there, and was saddened to find that reform was too much linked to revenge. Elizabeth Fry held that punishment was not for revenge, but to lessen crime and reform the criminal. Her evidence before a Select Committee of the House of Commons, their report and local opposition in Sydney, led to the passing away of the whole inglorious scheme of convict transportation.

Charles Badham (1780 to 1845) wrote in 1808 on inflammations of the mucous membrane of the bronchi, which he

named bronchitis. He made an important study of infantile paralysis (1835)—"suddenly induced paralysis in the extremities occurring in children without any apparent cerebral or cerebro-spinal lesion". The first description was given by Michael Underwood in 1789.

Gilbert Breschet (1784 to 1845) was a French anatomist. After him are named Breschet's canals carrying veins (Breschet's veins) in the diploë of cranial bones, Breschet's hiatus in the helicotrema, and Breschet's sinus—the spheno-parietal sinus.

John Frederick Daniell (1790 to 1845), of King's College, England, an English physicist, is well known for his galvanic cell, in which copper and zinc plates dip into copper sulphate and dilute sulphuric acid with a porous earthenware partition between them.

John Houston (1802 to 1845), a Dublin physician, is known in connexion with Houston's muscle—the anterior portion of the *musculus bulbocavernosus*—and with the folds in the rectum, *plica transversalis recti*, called Houston's valves.

James Johnston (1777 to 1845), a naval surgeon, studied Batavian or Edam Edam endemic fever, and in 1813 published a book on the influence of tropical climates on Europeon constitutions.

A. Vetter (1799 to 1845), a German physician, was a prominent advocate of balneotherapy.

Births in 1745.

Sir Charles Blicke was a surgeon at Saint Bartholemew's Hospital, London, from 1745 to 1815. His sole claim to fame is that the famous Abernethy was his apprentice.

William Cumberland Cruikshank (1745 to 1800,), of Edinburgh, was assistant and later partner of William Hunter in the leading school of anatomy at Great Windmill Street, London, and after Hunter's death carried it on with Baillie. In 1778 he reported on the reunion of divided nerves. In 1786 his anatomical study of "the absorbing vessels of the human body" helped to lay the basis of our knowledge of the lymphatic system. In 1795 he published the results of experiments in 1779 on the insensible perspiration of the human body, in which he proved that the skin gave off carbon dioxide. In 1797 he observed in the Fallopian tubes of rabbits that on the third day after impregnation ova were to be found, but on the fourth day they had reached the uterus. He is the discoverer of the mammalian ovum. In the same year he noted albuminuria in cases of dropsy. Like Fothergill, he kept up a botanical garden of his own. In spite of a large practice he ran a dispensary for the poor. Dr. Johnson, whom Cruikshank attended in Johnson's last illness, called him "a sweet-blooded man".

Johann Peter Frank, who was born at Rotalben in the Palatinate in 1745 and died in 1821, may be looked on as the father of modern public health. He maintained that the real wealth of a nation was its human population, and that the duties of good government included the safeguarding of the health of the people and the maintenance of a healthy race by wise legislation. His greatest work is the "*System einer vollständigen medicinischen Polizei*" in nine volumes, published at Mannheim, Tübingen and Vienna over the years from 1779 to 1827. It dealt with the whole of human life "from the womb to the tomb", and is the first authoritative work on public health. Almost every health movement that has come into being since that date is discussed—for example, school health, sex hygiene, child welfare, nutrition, housing, cemeteries, comparative medicine. In addition, Frank put forward the ideal of a scientific medical policy. He was a clinician of note, and was greatly admired by Richard Bright. In 1820 and 1821 he brought out an epitome of clinical treatment, "*De curandis hominum morbis*", in two volumes. In this appears the first discussion of *diabetes insipidus* as against *diabetes mellitus*. Frank used fermentation as a test for sugar in urine. He held, too, that fever was the natural reaction against the morbific stimulus. Reared in poverty, Frank rose to high rank in the profession. He was indeed a true cosmopolitan. He held appointments at princely salaries in Göttingen, Pavia, Vienna, Vilna and St. Petersburg. He was Director-General of Lombardy in 1786, and consultant on the health of troops in Austria in 1795, and at Vilna in 1804 he began the first clinical school in Russia. He was not without a sense of humour. On his death bed he looked at the eight eminent physicians assembled in solemn consultation at the bedside. With a smile Frank said: "This reminds me of the end of a French soldier wounded by eight musket shots at the battle of Wagram; 'Morbleu' said he, as he died, 'it takes not less than eight bullets to kill a French grenadier'."

Valentin Hauy (1745 to 1822) wrote on the education of the blind in 1786, and founded the first school for the blind in 1785. He was the first to use embossed paper to teach reading to the blind. Diderot's advocacy of the possibility of teaching the blind to read by touch landed him in the Bastille; but Hauy was distressed by a burlesque, in which the blind were dressed up as objects of derision. His success in teaching them to read and write and play music began the modern education and care of the blind. Hauy did valuable work in crystallography.

Philippe Pinel (1745 to 1826), of Saint-Paul (Tarn), is best known for his request to the official visitor from the new republic that the chains should be struck off the insane. This took place at the Bicêtre Hospital. The surprised delegate, in giving the desired permission, added: "Your blood be upon your own head." Pinel's humanitarian ideas on treatment of the insane were first presented in an essay in 1792, but not published till 1801 in a treatise on mental alienation of mania. He introduced the "open door" school of psychiatric treatment. Esquirol spread his ideas in France in 1810, Gardner Hill and Conolly in England from 1836 to 1830, Dorothea Lynde Dix in 1848 in America. Few medical movements seem to have met such prolonged and vigorous resistance to their introduction. Pinel also wrote "*Adynamie*" at Paris in 1812.

Benjamin Rush was born at Byberry, Philadelphia, on December 24, 1745, and died there on April 14, 1813. Of English Quaker stock, he took his bachelor of arts degree at Princeton at the age of fifteen years. For six years he was apprenticed to Dr. Redham, and while still a student he wrote a vivid eye-witness description of the yellow fever epidemic in Philadelphia (1862). He was sent abroad for further study at Edinburgh (taking the degree of doctor of medicine in 1768), France and London, and returned in 1769 to the chair of chemistry. Twenty years later, in 1789, he succeeded Morgan as Professor of the Institutes of Medicine in the University of Pennsylvania. In forty-four years he personally taught 2,250 students. Appointed in 1783 physician to the Pennsylvania Hospital, he attended daily with the utmost punctuality till the day of his death thirty years later.

Rush followed the French school of treatment. He stuck to the lancet and calomel with copious venesection and brisk purging, low diet and cold effusions. For example, in a single case of pneumonia and pleurisy a total of 100 ounces of blood was removed. In this drastic treatment he at least was thoroughly sincere, for he used it for himself and his own family. He has been criticized for his methods. It is only fair to note that the best physicians of the time, Lettsom for example, advocated these energetic measures. Indeed, torrents of blood were still being let in France under Broussais and Bouillaud in the eighteen thirties. In 1833 alone over 30 million leeches were used in France. Not till 1835 did Louis drive the first nail into the coffin of blood-letting, but it was still warmly debated in Edinburgh in the eighteen-sixties (see Hughes Bennett). In *The Lancet* during 1845 one notes experienced physicians recommending vigorous bleeding, for example, in malaria, and deploring the increasing neglect of the lancet.

One may note, too, that the vast majority of the paying patients in the eighteenth century ate and drank enormously. To be a "three-bottle man"—three bottles of port wine after dinner—was the fashion. "Billy" Pitt succeeded in outwitting Napoleon because he had a sensitive stomach, which vigorously refused to retain the fashionable quota. Pitt at times had to retire behind the Speaker's Chair, but he retained a clear, sober brain for his duties. Obesity, plethora, gout, apoplexy, aneurysm

and bladder stone were regular features of middle life, and if derivative treatment ever did good, it was surely indicated then.

Rush, like most great men, had his enemies. He in many ways showed great independence of mind. He criticized the worship of "ardent spirits" and attacked war, slavery and judicial death sentences. As a member of the Provincial Congress his name appears among the signatories of the Declaration of Independence, and later he became for a while Surgeon-General of the Middle Department, but fell out with his superior officer, Shippen, and joined Gates, Adams and others, opposing the Fabian strategy of Washington. He refused to take any salary for his military services. Still more unpopular was his blaming bad sanitation as the origin of the yellow fever epidemic. Though it was based on facts, this fairly roused the worthy citizens of Philadelphia. It is the dirty who most resent the accusation of dirt. Cobbett in his paper attacked Rush violently, but Rush won an action for libel for 5,000 dollars, which he gave to the poor. Rush, however, kept at his post through the yellow fever epidemic of 1793, of which his colleague on the Port sanitary control was a victim. He described this experience in his finest effort: "The Bilious Remittent Yellow Fever as it Appeared in the City of Philadelphia, 1793." As a clinician he was unrivalled in America and held in high esteem in Europe, and his writings show the width of his interests. These include important descriptions of *cholera infantum*, dengue fever (the first in the English language, 1780) and insanity. He also wrote on tetanus and on spasmodic asthma. In 1777 appeared an admirable pamphlet: "Directions for Preserving the Health of Soldiers, Addressed to Officers of the Army of the United States." The first great American book on diseases of the mind was published by him in 1812. He was the apostle of focal sepsis, noting the value of extraction of decayed teeth in certain diseases—rheumatism of the hip, dyspepsia, epilepsy, headache, *et cetera*. He wrote: "I am disposed to believe that they (the teeth) are often the unsuspected causes of general and particularly of nervous diseases. It is not necessary that they should be attended with pain." He supported the education of women, the abolition of oaths, and the abandonment of punishments in public. Other subjects on which he made useful contributions were on the diseases and customs of Amerinds and of German migrants, and on thermic fever. He founded the first dispensary in America in 1786. In 1799 he was appointed Treasurer of the United States Mint. In his younger days he wrote: "Medicine is my wife, science my mistress, books are my companions, my study is my grave, there I lie buried, the world forgetting by the world forgot." Oliver Wendell Holmes made the cutting remark years later: "I do not think the breach of the seventh commandment can be shown to be of advantage to the legitimate owner of his affections." Later in life (1776) Rush married and had a family of thirteen children. He then wrote: "Celibacy is a pleasant breakfast, a tolerable dinner and a bad supper. The supper is not only bad but, eaten alone, no wonder it sometimes becomes a predisposing cause to madness." Clarke tells a grim story of Philip Syng, Physick of Philadelphia, apropos of Rush's careful precautions against his body being stolen from its grave for anatomical dissection. The night after the funeral of Dr. Benjamin Rush, a burly Negro rang at Syng's door and inquired: "Do you want Dr. Rush? I will have him at the College for you at nine o'clock tomorrow morning for twenty dollars!"

Alessandro Volta, who was born at Como on February 18, 1745, and died there on March 5, 1827, became professor of physics first at Como and then at Pavia (1779). Towards the end of the eighteenth century great interest was taken, for example, by John Hunter (1777), in fishes like the torpedo that gave anyone touching them a shock. The word torpedo comes from the Latin "*torpedo*", meaning numbness or torpidity, and was first given to the fish. Galvani, in Bologna, in 1791, had shown that if the legs of recently killed frogs were used, muscle contraction could be brought about by metallic contacts and the muscle contraction itself gave rise similarly to electric currents. Volta further studied this newly found galvanism. He showed that sensation produced by the current—for example, a saltish tasts on the tip of the tongue—could result from two coins, gold and silver, connected by a wire and brought into contact with the tongue. He was able to show that the animal origin of galvanism was not essential, and constructed his *couronne de tasses* in 1800. Eight silver and zinc discs were piled up in pairs, paper strips soaked in salt water being placed between each pair of discs and the four pairs being supported by glass rods. From the lowest disc a metal strip passed to a vessel of salt water. When the top disc was linked by a conductor to the vessel, a current passed. Next Volta tried with five cups containing dilute acid or salt water. In each cup a pair of discs of different metals were placed and each pair was connected with metal strips. Again a current could be obtained. Volta transferred interest from the muscle to the conjunction of dissimilar metals; he changed a momentary to a lasting flow. The Voltaic pile was the first device for creating an electric current and the ancestor of the electric cell. Cruikshank quickly improved the pile, and in the next year it was used to electrolyse water. In 1808, Davy, by using this new powerful source of electricity, was able to isolate potassium and sodium, and with a battery of 2,000 plates produced the electric arc light between carbon poles. The name of "volt" for the unit of electric potential and the voltmeter for its estimation give the discoverer well-merited immortality. Among the honours his world-wide reputation earned him were the Copley medal of the Royal Society and a medal especially struck by order of Napoleon.

Events in 1745.

Jacques Fabian Gautier d'Agoty (1717 to 1786) published his "*Essai d'anatomie en tableaux imprimés*" at Paris in 1745.

Agostino Bassi (1773 to 1856) in 1836 showed that silkworm disease was due to the presence of microorganisms before Pasteur founded bacteriology.

Charles Bonnet (1720 to 1793) wrote an important treatise on insectology (1745). He believed (1762) in preformation in the ovum or sperm (epigenesis), and had a conception of a scale in nature with various links. He also experimented on regeneration after transsection in worms (1741-1745).

Thomas Cadwalader (often pronounced Calder) (1708 to 1779), of Philadelphia, was a pupil of Cheselden. "An Essay on the West-India Dry-Gripes to Which is Added an Extraordinary Case of Physick", was printed and published by Benjamin Franklin in Philadelphia. Cadwalader later proved that the disease was due to taking rum which had been distilled through lead pipes. The extraordinary case was one of osteomalacia, and autopsy was performed. Cadwalader pioneered inoculation in 1830, and founded the Philadelphia Library.

William Heberden, senior, wrote "*Antitheeriaka*", an essay on mithridatium and theriaka (1745). According to Galen, the first formula for a theriaca, an antidote against the bites of venomous animals, was inscribed on stone in the great Temple of Asklepios at Cos. Nikander, of Colophon (third century B.C.), called substances used to treat the bites of venomous snakes and animals theriaka or theriacs, from *theria*, a wild beast. Antidotes for poisons swallowed he called alexipharmiks, from *alexion*, to repulse, and *pharmakon*, a poison. The first famous student of poisons was Mithridates Eupator, King of Pontus (132 to 63 B.C.), who made extensive tests on criminals as well as himself in order to develop an immunity. When captured by Pompey he tried to poison himself and failed, and had himself put to the sword by his attendant. Pompey ordered a search for the famous antidote and it was found—twenty leaves of rue, a pinch of salt, two nuts and two dried figs! Andromachus, Nero's physician, issued in its place one of 73 ingredients, including vipers. It was indeed a panacea. Finally Matthiolus extended the formula to 250 items. One of the best-known antidotes, evolved by Philon of Tarsos, persisted till the middle of the eighteenth century, when it had dwindled down to opium, pepper, ginger, caraway, syrup, honey and wine. It is the basis

for confection of opium. At Montpellier the illustrious professors of the famous Faculty of Medicine were present at its preparation to give their approval or censure. It was looked on as a gift for a prince, and specimens are recorded as the property of Alfred the Great and of Henry V. Later the Royal College of Physicians supervised and the Society of Apothecaries carried out its public preparation.

Sir Walter Raleigh invented an antidote while he was interned in the Tower of London. This was recognized later as *Confectio Raleighana*, modified to *Confectio Cardiaca*, cut down further to *Confectio Aromatica*; there finally remains a vestigial remnant as "aromatic chalk powder". William Heberden's essay let daylight into the superstitious smoke-screen round these mysterious preparations, and they vanished from therapeutics.

Robert James (1705 to 1776) published his comprehensive medicinal dictionary in three volumes (1743 to 1745), the best before the nineteenth century. He was an early friend of Dr. Johnson in his Litchfield days. James was more popularly known for his fever powder—oxide of antimony 57 parts, phosphate of lime 43 parts—which was the fashionable medicine of the day. When Goldsmith died in 1774, argument arose as to whether his death was due to too much or too little of James's fever powder.

Johann Junker (1679 to 1759), Professor of Medicine at Halle, wrote on difficult dentition (1745).

Christian Gottlieb Kratzenstein (1723 to 1795), of Copenhagen and Halle, in 1745 noted purposeful muscle contraction brought about by static electricity. He was a pioneer in electrotherapy.

Johann Nathaniel Lieberkühn (1711 to 1756), of Leyden, described the intestinal villi and Lieberkühn's glands (1745).

Carl von Linné (Linnæus) (1707 to 1778) first described aphasia in 1745. He was a physician as well as a very great systematic naturalist, wrote a *materia medica* and set out a scheme of classification of disease.

Johann Zacharias Platner (1694 to 1747), of Leipzig, wrote *"Institutiones chirurgicae rationales"* in 1745.

Gerhard Van Swieten (1700 to 1772), of Leyden, a pupil of Boerhaave, organized clinical instruction (1745) at the *Burgerspital*, Vienna, under de Haen. Leyden alone previously provided this help to students. Under the Empress Maria Theresa education was fostered, and this date may be taken as the time of general introduction of clinical teaching in medical schools.

Jean Baptiste Tenon, a Paris physician, was born on February 21, 1724, and died on January 16, 1816; he introduced an inoculation service against smallpox (1745). In 1788 he exposed the gross overcrowding and dirt of the hospitals of Paris at that time. Only about 40% of beds were single, and others took up to six patients. Howard found similar conditions in other European capitals.

Events in 1745.

In Ireland, on September 18, 1745, the apothecaries, who had been linked up to the barber surgeons since 1687, obtained a separate charter incorporating them as the Guild of St. Luke.

One of the treasures of the Royal College of Physicians in Edinburgh is "Prince Charlie's Medicine Chest", brought by him from France in 1745. Sir Stuart Thriepland took charge of it and no doubt used it at Culloden. Thriepland (1716 to 1805) was in hiding with the Prince and with Lochiel and finally escaped to France. In 1747 the *Act of Indemnity* allowed his return to Edinburgh, where he practised with success; he was president of the Royal College of Physicians of Edinburgh in 1766. The chest is a ten inch cube, and its phials and small pewter boxes contain over 160 medicaments not to mention writing materials and a few instruments.

Burns describes a similar box and its contents:

> Forbye some new uncommon weapons
> Urinus spiritus of capons,
> Or mite-horn shavings, filings, scrapings
> Distilled per se,
> Sal alkali o'midgetail clippings
> And monie mae.

At Culloden on the staff of the Duke of Cumberland was another Scot, Sir John Pringle, sometime professor of pneumatics of the University of Edinburgh, who had served under the Duke in the Low Countries. In 1745 he was appointed in charge of military hospitals. In later editions of his classic on "Diseases of the Army" (1752) he added a study with a curiously modern title on "septic and antiseptic substances".

Another doctor in the field that year was Jean Ulrich Belguier, who did notable work with the French at the battle of Rosbach and fought against Frederick II of Prussia. Belguier was opposed to the ruthless amputations for comminuted war fractures favoured by Pott and others.

We hear, too, of the fine work done at the battle of Prestonpans by Alexander Monro (*primus*), the first and handsomest of the famous triad of anatomists at the Edinburgh school.

Among the scientific achievements in 1745 noted by Edgar Scott in *Nature* were the isolation of manganese by Gahn, of Sweden, and the balloon ascents of Etienne Montgolfier, which gave us Montgolfier's law still used in the study of ventilation.

Middlesex Hospital was founded in 1745.

The Foundling Hospital was established in 1745 in the building in which it was to remain for the next 190 years or so, when it was moved out of London. In the same year Hogarth began the famous series of paintings which he presented to the hospital. Händel, too, conducted many concerts for its support. The hospital began in 1741 as the result of a remarkable campaign by Captain Thomas Coram (1667 to 1751). Coram used to walk into the city from Rotherhithe, and was horrified by the sight of the bodies of dead and dying unwanted babies exposed on the dunghills of the city. After a seventeen years' effort £40,000 were collected, and beds were temporarily established for twenty-one children at Hatton Garden. In 1756 it was decided to admit all comers. A basket for the foundling was hung outside the gates, and in the first year over 3,000 babies were admitted. The Foundling Hospital is our first milestone in child welfare.

By act of Parliament on May 2, 1745, the surgeons separated from the barbers, taking with them only the endowments of the combined Arris and Gale lecture foundation. In spite of a combined College of Medicine and Surgery authorized in London in 1415, the barber surgeons since 1387 had as a livery company kept their independence. In 1462 the crafte of surgeons was recognized by Edward IV, and the College of Physicians was founded by Linacre and others in 1518. In 1530 Parliament forbade strangers to be "bere bruers and bakers which bene common vitaylers and also surgeons and scryveners and to be expounded hande craftesmen usying any of the sayde mysteryes or scynes". In 1545 an ordinance freed the barber surgeons from various official services required of livery companies. This followed the Royal Charter of July 24, 1540, which united the Barbers' Company with the Guild of Surgeons to form the Barber-Surgeons' Company.

The separation in 1745 seems to have been mainly due to the efforts of Ranby, principal surgeon to the King, and Cheselden, and the naval surgeons proved its strongest supporters. They found when prisoners of war their credentials questioned by the French authorities, who seemed puzzled to know whether they were barbers or surgeons. On March 22, 1800, after many struggles to obtain an act of Parliament, the Royal College of Surgeons was established by charter of George III, and it received its present name by charter from Queen Victoria in 1843.

The first Master of the Barbers' Company was sworn in as early as 1308 (Edward II). Originally it was a guild with a more or less religious function, such as attendance at funerals, and did not omit an annual feast. By 1308 it concerned itself with more practical activities as tooth-drawing, bleeding and cauterization. At first the barbers assisted the monks, but the Council of Tours in 1163 attacked surgical practice by the clergy, as it involved shedding of blood, and the barbers took their place as barber surgeons. As early as 1307 the City of London forbade advertising by barbers by exhibiting blood in their

windows. Richard le Barbour took oath to make scrutiny and distrain upon any keeping brothels or acting unseemly in any other way and to the scandal of the trade. In 1375 the skill of any person using barbery was examined, and it was his duty to look out for lepers.

Beside those practising barbery were a group who exercised the faculty of surgery. Four master surgeons appointed yearly made scrutiny of all including women undertaking cures and surgery. We are told how (1497) in a "gret audiens of many ryght well expert men in surgery the seide Roberd Anson was founde abyll and discrete to ocopy and use the practise of Surgery as well a bowte new wounds as cansers, fystelis, ulceracions and many other diseases and divers in eny place when and as ofte as hym best lyketh".

In 1511 an act of Parliament (still extant, I think) placed the licensing of surgeons in the hands of the Bishop of London and the Dean of St. Paul's:

> Forasmoche as the science and connynge of phisike and surgerie (to the perfet knowledge whereof be requisite both great lernyng and rype experience) is daily within this realm exercised by a great number of ignorant persons of whome the great part have no maner of insight in the same nor in any other kind of lernynge some also can no letters on the boke.

Births in 1645.

Janus Abraham a Gehema (1645 to 1709), an army surgeon at Brandenburg, published at Rostock (1869) one of the early military medical manuals, *"Der wohlversuchte Feld-Medicus"*. He sought to have the field chests of drugs for army use, which seem to have been brought in in 1612, made a government issue to medical officers and not to be provided at their own expense.

Louis Joblot (1645 to 1723) published in 1718 the first special treatise on the protozoa. Leeuwenhoek had already seen these "little animals".

Nicolas Lemery (1645 to 1715), of Rouen, strongly held that chemistry was a science of observation with demonstrable proofs. His *"Cours de chymie"* was one of the best known textbooks of the century. A refugee to England at the Revocation of Nantes, he changed his religion and reestablished his pharmacy in Paris. His son Louis was also a famous chemist.

John Mayow was born in Cornwall in 1645, and died in 1679. (This is the generally accepted date of birth. Edgar Smith states that he was baptized in December, 1641.) Mayow's early death was a serious loss to chemistry and physiology in England. In 1668 appeared his classic *"Tractatus quinque"*. He realized that breathing was a gas exchange on the part of the blood, the dark venous blood taking up nitro-aerial spirit and changing to crimson. The ingredient taken up was the same as a gaseous constituent of nitre. Mayow realized that the fœtus can obtain through the placenta both food and "nitroaer", and further realized that heat is produced in the muscles. He had noted that substances after combustion gained weight, and did not lose it, as they should if "dephlogisticated". Professor Gotch blamed the overlooking of Mayow's efforts on an ignorant translator of his Latin treatise.

Jean Mery (Merry) (1645 to 1722), a lithotomist in Paris, described the human Cowper's glands (1685); Biasius described the glands in the rat (1674).

Johannes von Muralt (1645 to 1733), of Zürich, was a noted comparative anatomist.

Cecilio Folli (Folius) (1615 to 1660) described the long process of the malleus (1645) and the mammalian semicircular canals.

Marco Aurelio Severino (1580 to 1656), of Tarsia, a Neapolitan surgeon, in his *"Zootomia Democritæa"* (1645), dealt with the anatomy of various animals including the pig. "Zootomia" is made up from ζῷον (animal) and τομος, and suggested dissection of animals to the point of indivisibility. Severino thought the microscope could throw light on comparative anatomy. The word "zootomy" was later used in a satire on society in the seventeenth century. Severino also published the first textbook (with illustrations) of surgical pathology (1632). He was keen on the cautery, and in violent toothache tried cauterizing the antihelix (possibly the auriculo-temporal branch of the mandibular branch of the fifth nerve).

John Wallis (1616 to 1703), a foundation member of the Royal Society, left on record that as the "invisible college" it had its origin in the year 1645 in weekly meetings, in Dr. Goddard's lodgings in Wood Street and elsewhere, of "divers worthy persons inquisitive into natural philosophy and other parts of human learning and particularly . . . experimental philosophy". Theology and state affairs were wisely barred; physick, anatomy, chymicks, were among the subjects listed for inquiry.

In 1649 Dr. Wilkins, brother-in-law of Oliver Cromwell, took up the wardenship of Wadham College at Oxford, and with other seriously minded inquirers after truth, such as Wallis, Ward, Boyle and Petty, formed a branch of the society. The meetings took place weekly in the gateway tower of the college. Amongst the group was that "miracle of a youth", "that prodigious young scholar" Christopher Wren. Evelyn, the diarist, found there (1654), in Wallis's room, a "variety of shadows, dials, perspective and many other artificial, mathematical and magical curiosities, a way wiser, a thermometer, a monstrous magnet". The first minutes date back to a meeting at Gresham College on November 28, 1660. Charles II, who with the Duke of Buckingham and Prince Rupert was devoted to chemistry, gave the society its Royal Charter on July 15, 1662, and was a frequent visitor to its meetings. One of the earliest publications of the Royal Society was Captain John Graunt's "Natural and Political Observations on the Bills of Mortality", 1662, the first great book on vital statistics.

The first idea of a scientific society came from Giovanni Battista della Porta, of Naples, who founded the *Accademia de Segrete* in 1560. This was suppressed by Pope Paul III, because it was believed to go in for magic. The *Accademia dei Lincei* (Lynxes), founded by Federigo Cesi on August 17, 1603, survived early clerical opposition and is the oldest living scientific society. In 1657 the *Accademia del Cimento* (academy of experiment) was set up at Florence, and therefore comes third in the list.

Daniel Whistler (1619 to 1684) in 1645 published as his doctorate in medicine thesis at Leyden *"De morbo puerile Anglorum quem patrio idiomate indigenæ vocant* 'The Rickets' *"*. This is the first definite clinical description of rickets five years before Glisson with six other physicians brought out (1650) *"De rachitide sive morbo puerili qui vulgo* 'the rickets' *dicitur"*. Glisson's is far a fuller treatment, but the similarity of titles is singular and striking, if not sinister. Both Whistler and Glisson came from Dorset, where the name of rickets is common. Whistler suggested a name of his own, *"pædosplanchnoosteocaces"*. Whistler is said to have had charming manners, and to have been witty and amusing. Elected a Fellow of the Royal Society in 1663, he was chosen president of the Royal College of Physicians in 1684, but died that year. Rumour says that he peculated some of the funds.

Deaths in 1645.

Johann Schultes—Scultetus—was born in 1595 and died in 1645. In his "cheirolotheekee" (1655) (*"Armamentarium Chirurgicum"*, Ulm, 1653) he gave a complete illustrated description of the surgical operations and instruments then in use—reduction of dislocations, the employment of forceps for delivery, the passing of sounds, *et cetera*. His name is given to the special splint for fractured leg, a gutter wooden splint with overlapping strips of bandage one and a half times the length of the circumference of the limb, which are used then to wrap round the limb, and also the position of the patient on an inclined plane with head low which he used in herniotomy.

Births in 1545.

John Gerarde (1545 to 1612) was born at Nantwich, in Cheshire, and died in London, being buried at Saint Andrew's, Holborn. He wrote "The Herball or General Historie of Plantes", published at London in 1597. Gerarde was a barber surgeon and rose to be Master in 1608. Much of his material was drawn from the Belgian botanist, Dudoens, whose *"Cruydeboeck Tantwerpen"* was published in 1554.

Gerarde was a thoroughly experienced gardener as well as an apothecary. His own physic garden in the Holborn (Old Bourne) was reputed to contain over 1,000 plant types, and he superintended Lord Burghley's garden for twenty years. He tells where various "simples"—water violets, penny-royal, bugloss, saxifrage—are to be found in plenty in such places as Mile End, Whitechapel, Pickadilla, the Old Kent Road! It is interesting to note that "blitzed" areas—for example, near Saint Paul's—are today growing self-sown herbs and flowers. This and other herbals fostered the study of medicinal plants at the University Physic Gardens.

Events in 1545.

In Paris in 1545 Gonthier d'Andernach wrote about the fulminating forms of the "true pest" (bubonic plague). He told how the sick fell dead in the street as if struck down by lightning. House quarantine was in full use, according to the example of Venice and other Italian cities.

Charles Estienne (Stephanus) (1504 to 1564) published his *"De dissectione partium corporis humani"* at Paris in 1545. This magnificently illustrated edition was the first to contain pictures of the external arrangements of veins and nerves and included diseased as well as normal anatomy. Estienne belonged to a family of publishers.

Conrad Gesner (1516 to 1565), of Zürich, trained at Basle. After travelling and practising in many places, he settled down in Zürich in 1555 as professor of natural history, and died of the plague in 1565. In spite of his wanderings, he wrote a twenty volume *"Bibliotheca Universalis"* (1545 to 1549), the first great bibliography. He wrote books on botany (1541) and on animals (1551 to 1558) with over a thousand illustrations. He was interested in philology and an enthusiastic alpine climber.

In 1545 appeared in Venice a Latin translation by Hagenbut of the works of Hippocrates, which had an enormous success and first brought to the notice of every physician, for all could read and indeed speak Latin, the full flavour of the Father of Medicine and his epoch-making writings. The Latin translation used as a basis the great Greek edition edited by Cornarius and published by Frobenius at Basle.

Giralamo Cardano or Cardan, who was born on September 24, 1501, at Pavia, and died at Rome on September 21, 1576, published in 1545 *"Artis magnæ sive de regulis algebræ liber unus"*, the first great book on algebra. He had already gained fame by his treatise on astrology (1543) and by his book on practical arithmetic (1541). In 1551 came his studies on physics, *"De subtilitate rerum"*, and in 1557 its concluding volume, *"De varietate rerum"*. Of great interest is his autobiography, *"De vita propria"*. With all this scientific and mathematical writing, he practised all his life as a physician and was a consultant of European reputation. Comrie gives in detail the treatment he prescribed for the Archbishop of Saint Andrews, who brought him to Scotland for advice for a supposed "consumption". Cardan correctly diagnosed his illness as asthma and restored him to health. The detailed regimen of life and diet as well as drugs that he prescribed shows him to have been a thoroughly capable and sagacious physician. He invented a device for teaching the blind, using the sense of touch to read and write, and thought of ways of teaching the deaf. He was indeed a savant and a scientist, and passionately keen on research, yet so unscrupulous that he stole the solution of cubic equations from Tartaglia, a fellow mathematician, and his private life was marred by serious scandals. He was keen on astrology, and thought that the furrows in the forehead were influenced by the celestial bodies—an idea he worked out on 800 pictures of human faces—in his "Metoposcopia", an early study in physiognomy. Algebra in early mediæval times was an activity of surgeons; the word is of Arabic derivation and means broken parts, and hence fractures. In 1202 Fibonacci, taking his title from Al Karasmis's work in Arabic, wrote on *"Algebra et al Muchabala"* including fractions. After Cardan's work the mathematicians seem to have taken over algebra from the surgeons.

John Heywood, in 1545, brought out a satire, the play called "The Foure PP"—palmer, pardner, potycary and pedlar. The "potycary" urges that he is the true soul-saver, as his medicines start people off into the hereafter. The glyster was apparently his favourite method of treatment.

Ambroise Paré (1510 to 1590), a surgeon of Paris, published in Paris in 1545 one of his most important works, *"La méthode de traicter les playes faictes par hacquebutes et autres bastons à feu et de celles qui son faictes par flèches dardz et semblables"*. Trained as a barber surgeon, surgical companion or resident at the *Hôtel Dieu* for three years or more, he joined up with the French army invading Italy. One night his supply of boiling oil then used for gunshot wounds ran out. In its place he used yolk of eggs, oil of roses and turpentine. After a restless night he was agreeably surprised to find that the casualties had done well, while those to whom he had applied the boiling oil were feverish with much pain and swelling about their cauterized wounds. It was after this that he passed his final examination as a barber surgeon (1541). One surgeon he met was said to have a wonderful balm for dressing. After long persistence Paré got from him his recipe—new-born puppies boiled in oil of lilies mixed with earth worms prepared with oil of Venice. Paré, however, found useful an old wives' remedy for burns—raw onions and salt. His book on gunshot wounds made his name. In 1539 Sylvius (Jacques du Bois), professor at Paris, asked Paré to dinner, and was impressed by the latter's method of placing the patient in the position in which he was when wounded by the bolt from the arquebus in order to trace both the bolt and the parts injured. Sylvius encouraged Paré to publish this, his first book, which, like Hippocrates, he wrote in his own everyday language.

William Raynalde, a "physition", of London, translated into English the first great mediæval textbook on obstetrics, the *"Rosegarten"* of the German physician, Eucharius Roslin (1515). Roslin based his work mainly on the writings of Soranus of Ephesus in the second century. The book, "The Byrthe of Mankynde", was published in London (1545). In the same year Walter Reiff, of Strassburg, plagiarized Roslin.

Deaths in 1545.

Sir William Butts died on November 17, 1545. He was a personal friend of and physician to Henry VIII, and has the unique distinction of being the only member of our profession to be given a part by Shakespeare in one of his plays. Dr. Caius, a French physician, who appears in "The Merry Wives of Windsor", is hardly even a caricature of the physician of that name in the sixteenth century (about 1553), while the scenes are cast in the fifteenth century (about 1415). In "Cymbeline", Cornelius, a doctor, is, of course, fictitious, and like the apothecary in "Romeo and Juliet", dispenses dangerous drugs. A doctor of physic—a Scottish doctor—is consulted like a psychiatrist about Lady Macbeth, just as Cordelia brings in a doctor to King Lear. Doctor Butts draws the king's attention to the council's action in keeping Cranmer waiting outside—an insult which the king is quick to resent. Sir William Butts is, I think, the first English physician to have his portrait painted, and his wife, Lady Margaret Butts, one of the few doctors' wives ever to reach this distinction. Lady Margaret Butts has rather a big bony face with an intelligent and not unkindly expression. Her husband's face gives an impression of capacity not unmixed with humour. The portrait by Holbein is now in Boston.

Hans Holbein (1497 to 1544) came to England in 1526 with letters from Erasmus, whose portrait by him is a masterpiece. Holbein was received into royal favour, and produced a series of magnificent portraits of the king, and of several of his queens and prospective queens. His painting of Dr. John Chambre, one of the king's physicians, is one of his best. Both Butts and Chambre were personal friends of Henry VIII. One of Holbein's best works and the chief treasure of the Barbers' Company depicts Henry VIII granting a charter to the barber surgeons of London (1540). This they managed to retain when separated from

the surgeons by the act of 1745. The Tudor monarch, wearing his crown and clad in sumptuous apparel, sits in the centre. He holds the sword of state in his right hand and with the other hands the charter to the Master of the Company, Thomas Vicary, kneeling with fourteen of his brethren. To his right kneel in order Dr. John Chambre and Sir William Butts, with Master J. Alsop, the royal apothecary. The painting is about six feet high and ten feet wide. It is said to be the best likeness of the king.

Pepys, on February 27, 1692, went to "dinner at the Chirurgeon's Hall, where we had a fine dinner and good learned company many doctors of physique and we used with extraordinary great respect". "Among other observables we drunk the king's health out of a gilt cup given by King Henry VIII to this Company with bells hanging at it, which every man is to ring by shaking, after he hath drunk up the whole cup." "There is also a very excellent piece of the king, done by Holbein, which stands up in the Hall with the officers of the Company kneeling to him, to receive the Charter."

James I wrote to the Company and arranged for a loan of the painting "of our predecessor of famous memory, King Henry VIII . . . which being very like him and well done we are desirous of being copied".

A manuscript in the British Museum shows Henry Tudor's interest in the art of the apothecary. Its title is "A Book of Plaisters, Spasmadraps, Ointments, Pulthes, etc., Devysed by the King's Majestie, Dr. Butts, Dr. Chambre, Dr. Cromer and Dr. Augustin". Fifty ointments and 39 plasters form the majority of the 130 prescriptions which were thus mainly for outward application such as a "plaister to resolve humoures where there is swellynge in the legges". A spasmadrap was made by dipping pieces of fine linen into the molten plaster and smoothing it out when cool with a spatula, or as Butts put it, "sleeke them on a sleke stone". The prescriptions present a wide selection of items, animal, vegetable and mineral. Henry was thoroughly expert in the methods then in use.

Earlier Centenaries.

Guide de Vigevano published his "*Anatomie*" in 1345. The earliest illustrations of mediæval anatomy were executed in 1314, of miniature size. Vigevano's drawings, though diagrammatic, show improvement and are in colour.

Rahere, who died on September 20, 1145, founded Saint Bartholomew's Hospital in 1123. Rahere was born of lowly race, but as a youth by his wit he made a name for himself at the court. As the result of a religious conversion he undertook the journey to Rome as a penance. During a severe illness he vowed that if he was allowed to return home he would build a hospital for the poor. On his way home Saint Bartholomew appeared to him in a vision, telling him to found a church in Smithfield. With the help of a grant of land from the king, Henry I—the land was outside the walls and in part a swamp—and with the encouragement of Richard Beaumes, named Rufus, Bishop of London, Rahere built a noble priory and hospital. The Norman choir of the priory, now Saint Bartholomew's the Great, alone remains from the dissolution of monasteries in the reign of Henry VIII. It is the sole Norman building existing save the chapel in the Tower of London. There Rahere's tomb can be seen (let us hope still) with a figure of the founder. No part of the hospital as built by Rahere remains; but his foundation has functioned without break for the past 822 years, caring for the sick poor and parturient women. Rahere was made head of the Priory, which belonged to the Augustinian Order, and governed it till his death at about the age of sixty years. In about 1145 the hospital received one of its charters from Thomas à Becket (Saint Thomas of Canterbury), then Bishop of London.

In 945 Frodoard gave one of the earliest accounts of a disease called *maladie des ardentes* and later Saint Anthony's fire. Frodoard said it attacked the limbs and consumed them bit by bit, killing the patient. The vigorous and better-off classes suffered most. The face and genitalia were also mentioned as sometimes rotting away. What the disease was is still disputed. Ergotism is perhaps the most likely surmise.

Ammonius Saccas, the sack carrier or porter, who died in 245, set up in Alexandria the Neo-Platonic school of philosophy, a breakaway from Christianity and from science. The universe, the macrocosm, was, in the belief of this school, made for man, the microcosm, the essential reality. It was a synthesis of the teachings of Plato and Aristotle with a dash of stoicism. The followers included Plutarch and Hypatia.

Aurelius Cornelius Celsus, stated to have been born in 25 B.C. and to have died in 45 A.D., flourished during the reign of the Emperor Tiberius. Celsus, as a Roman gentleman from the famous noble Cornelian family, seems to have been a medical dilettante who compiled an encyclopædia, "*De re medicina*", in eight books. His admirable, common sense, lucid account of ancient medical and surgical practice is based on Greek sources. His Ciceronian style caused his Latin to be greatly admired by Dr. Johnson. In his own day Celsus was not rated among the great, but the finding of his work in manuscript in 1444 caused a sensation, and as one of the early classical works to be printed (1478) it became widely known. It was indeed one of the text-books of the Royal College of Physicians (for its Latin) up to this century. Few authors have waited 1,400 years for appreciation and then won a high place in medical literature. Celsus is the first writer on the history of medicine, and he gives the first or early accounts of the ligature and of lateral lithotomy, of the oral speculum and of nutritive enemata, of malaria, of rabies and of *alopecia areata*. The well-known signs of inflammation are his—*rubor, calor, tumor, dolor*. Much of our information about Hippocrates comes through him.

SPINAL ANALGESIA.

By JOHN OLDHAM,
Major, Australian Army Medical Corps.

THIS article has been written to present the technique used and the observations made in a series of 500 cases of spinal anæsthesia, and to offer some suggestions resulting from this experience. The cases occurred at an Australian military hospital from October 1, 1944, to November 1, 1945. The majority of subjects were in the twenty to forty years age group, and were mostly well-trained, healthy men. The anæsthetic agent used was a hyperbaric solution of "Nupercaine", that is, 1 in 200, or "heavy solution".

Pre-Anæsthetic Measures.

1. On the evening before operation, an attempt is made to gain the patient's confidence by full general examination and a "chat".

2. Three-quarters of an hour to an hour before operation a hypodermic injection of 0·25 grain of morphine is given and three grains of "Nembutal" are administered orally. (In private practice 1·5 grains of "Nembutal" are given on the evening before operation.)

3. The eyes are lightly bandaged and the ears plugged with cotton wool before the patient is transported to the operating theatre.

4. The back is prepared and a sterile dressing is applied in the ward.

Technique of Spinal Puncture: Lateral Spinal Puncture (as for Mid-Spinal Anæsthesia).

The right or left lateral position is adopted, according to the side on which operation is to be performed, as the "heavy" solution tends to gravitate in the cerebro-spinal fluid, and will saturate the underneath nerve roots more thoroughly, and with suitable posture (to be described later) will tend to produce a higher level of anæsthesia in the central nervous system on the underneath side—that is, the side of operation. An injection of ephedrine hydrochloride (0·75 grain) is given at this stage just prior to

spinal puncture, into, or over, the lumbar muscle group; I usually give the injection subcutaneously rather than intramuscularly.

Marking the Spine.

Although the marking of the spine appears to be an elementary step, one feels that time is well spent in obtaining a nearly perfect posture, with the patient's back well arched, his chin towards his knees, his arms around his knees and his shoulders at right angles to the table.

A line is drawn with iodine, cutting the fourth lumbar spinous process—the spinous process that is cut by a line joining the two iliac crests at their highest point. The second and third spinous processes are palpated and marked with a spot of iodine, applied with a swabstick which is kept on the "spinal tray" for this purpose. Deep pressure with two fingers at the level of the chosen interspinous space, straddling the line of the spinous processes, is now a secondary check to the central line of the spine, and two dabs of iodine here complete the marking.

Spinal Puncture.

A 1% solution of "Novocain" is used to raise an intradermal weal over the site of puncture, and the projected track of the spinal needle is infiltrated with one millilitre of local anæsthetic solution for about one inch. If very fine spinal puncture needles are used, the local anæsthesia is unnecessary. In most cases, the skin weal alone is sufficient, although the ease of subsequent spinal puncture is gauged by the hypodermic needle. The spinal needle with stilet is now gently inserted, great care being taken that the axis of the needle is parallel to the table and at right angles to the back. The first increased resistance felt is at the *ligamentum flavum* at a depth of about two inches. The stilet is removed at this juncture, and the next resistance is shortly encountered at the duro-arachnoid theca. Cerebro-spinal fluid will drip if the canal has been entered.

The secret of "no miss" analgesia lies in the next manœuvres. The needle is rotated through 180°, and whether or not the drip improves is noted, as the bevel of the needle may have only partially penetrated the canal wall. During this puncture, the needle with the stilet is steadied by the left hand, a gauze "throw-away" being used. The syringe is applied to the needle, and the puncture is further proved by "barbottage"—that is, aspiration of a little of the oily-looking cerebro-spinal fluid into the anæsthetic solution. The "Nupercaine" solution is now injected over a period of about five seconds. Fifteen seconds are required if unilateral analgesia is desired, and the patient is left in the lateral position for ten minutes.

Posture of Patient.

The patient is now turned onto his back, and the head end of the table is lowered about 10°; the neck is kept well flexed with a pillow. After ten to fifteen minutes all the solution will have been "fixed", and any position desired by the surgeon may be adopted, though a slight degree of head-low table tilt is desirable. A low pillow is placed under the knees, and at times under the back, if lordosis is present, to support the regions which sag unnaturally, as paralysis of synergistic supporting muscles sets in, with resultant post-operative fibralgia and myalgia in these regions.

Tests for Analgesia.

A good check for the anæsthesia and the level of analgesia, as used by Dr. R. J. Silverton, is to test for paralysis of the extended legs at the hip joints after three minutes, and after five minutes to test the level of analgesia of the abdominal wall. There should be no pain sensation at the level of the umbilicus (tenth dorsal vertebra) at this time. If analgesia is present above or below this level, the head-low position is adjusted accordingly. A pair of Allis forceps is a useful instrument to test with; the patient is told that he will feel a "nip" all the way, but is asked to say where the blunting of sensation occurs. The test is made first from above downwards, then from below upwards as a check, in the case of uncertain or dull patients. Familiarity with the use of "Nupercaine" eventually leads to the discarding of this latter test, except in cases of high spinal anæsthesia.

Observations during Operation.

Recording of the blood pressure, except a reading made on the evening before anæsthesia in the case of older patients or toxæmic patients, should be avoided during the operation if possible, for two reasons: (i) the procedure tends to alarm the patient; (ii) extraordinarily labile results will be obtained from similar patients under similar conditions, indicating a pronounced nervous factor. Observation of the pulse, visually if possible, from the carotid arteries or from palpation of the superficial temporal arteries will give an indication of the pulse rate and volume.

Falls in blood pressure from intraabdominal manipulations, tugging on viscera *et cetera* are usually heralded by a sudden blanching of the lips and often a mild skin action. The response to reassurance, slight lowering of the head end of the table, the administration of sips of water or orange juice, cold sponging of the face and the moving of uncomfortable arms is often dramatic. Many patients who have received adequate premedication as described, and who have confidence in the form of anæsthesia, will sleep quietly during the entire operation.

Technique of High Spinal Anæsthesia.

There were approximately forty cases of high spinal anæsthesia in the series, including anæsthesia for cholecystectomy, pyelolithotomy and nephrectomy. This type of anæsthesia is much more difficult to manage than low and mid-spinal anæsthesia, and requires constant full anæsthetic supervision at certain stages.

Differences in Technique from Mid-Spinal Anæsthesia.

1. The "Nupercaine" solution is injected with the patient in the lateral position; the foot of the table has already been raised 5°. Some two millilitres of cerebro-spinal fluid are withdrawn into the solution, and then the injection is given slowly (ten seconds).

2. A "head-low" position of 15° is maintained for ten minutes or a little longer.

3. A further 0·75 grain of ephedrine is injected just before the peritoneum is opened.

4. Most of these patients having high spinal anæsthesia become nauseated and often retch just after the peritoneum is opened, and usually when the first pulling effects on the viscera are experienced. A kidney basin and towel should be at hand, and the patient should be treated by reassurance, cold sponging of the face *et cetera*. This condition usually lasts only three or four minutes. Heavy retraction of abdominal viscera later on in the operation may also result in this condition or in an "aching pain in the solar plexus". Rarely low-level intravenous anæsthesia with "Pentothal" may be required—low-level anæsthesia, as already the respiratory centre is depressed and the blood pressure is lowered by the spinal anæsthesia and the morphine. Nitrous oxide and oxygen anæsthesia is perhaps even better. I have required to reinforce spinal anæsthesia by the intravenous administration of "Pentothal" only in an early case, in which what I now consider to be an inadequate spinal dose was given (two millilitres were given to a heavy man). All patients having high spinal anæsthesia require constant attention, reassurance, sponging of the face *et cetera*.

Dosages.

In discussing dosages I shall refer to low spinal, mid-spinal and high spinal anæsthesia. Low spinal anæsthesia comprises analgesia for the sacral area, and includes analgesia for cystoscopy, hæmorrhoidectomy, circumcision *et cetera*; the actual skin analgesia is kept at approximately the level of the fourth lumbar to the fifth sacral vertebræ. Mid-spinal analgesia is used for lower abdominal operations and lower limb operations, and also for operations such as that for hydrocele, in which tugging on the cord is necessary; skin analgesia is maintained (according

to the described tests) at approximately the level of the seventh dorsal vertebra and below. High spinal analgesia is used for the upper part of the abdomen—cholecystectomy *et cetera*; the cutaneous level of analgesia usually rises as high as the second dorsal vertebra.

Low Spinal Analgesia.

For low spinal anæsthesia, puncture is carried out with the patient in a sitting posture in the "attitude of prayer", the elbows on the knees and the lower part of the spine well flexed. The needle is introduced between the third and fourth lumbar vertebræ, and the patient is laid supine after one-quarter of a minute to one minute. Operation is performed after three minutes. For cysfoscopy, 0·6 millilitre of solution is required, and for hæmorrhoidectomy 1·0 millilitre.

Mid-Spinal Analgesia.

For mid-spinal anæsthesia, puncture is carried out with the patient in the lateral position, either between the second and third or between the third and fourth lumbar vertebræ. For herniorrhaphy 1·6 millilitres of solution are required and for appendicectomy (even a high retrocaecal appendix) 1·7 millilitres. For manipulations of fractured lower limbs, and especially for cases in which bone drilling is required, 1·6 millilitres are needed—an unexpectedly high dose. The foot of the table is raised to an angle of 10°, and operation is begun after five minutes.

High Spinal Analgesia.

For high spinal anæsthesia, a dose of 2·2 to 2·4 millilitres of anæsthetic solution is given between the second and third lumbar vertebræ. The foot of the table is raised to an angle of 15°. Operation is begun after ten minutes.

Comment.

The above-mentioned doses are the upper limit for a heavy, healthy adult, unless a protracted operation is expected. For instance, when an operation for the repair of bilateral recurrent hernia is undertaken (mid-spinal anæsthesia), it is advisable to increase the dose from 1·6 to 1·8 millilitres, although in this series a man weighing thirteen stone experienced no pain with a dose of 1·6 millilitres for a bilateral hernia operation of two and a half hours' duration. He was, however, probably a good type of subject well sedated. In the case of high spinal anæsthesia, however, 2·4 millilitres is the upper safe limit.

The Surgeon's Viewpoint.

The surgeon appreciates the excellent muscular relaxation, the absence of anæsthetic straining and post-operative vomiting, and the shortening of the waiting period before the operation can be commenced. The actual manipulative procedure for obtaining spinal anæsthesia should not take more than five minutes, and with practice three minutes.

After a short acquaintance with spinal analgesia produced by heavy "Nupercaine" solution, any surgeon could in a country hospital confidently give his own low spinal and mid-spinal anæsthetics, if necessary.

A confident, positive attitude should be adopted by the surgeon, even if he is uncertain of the analgesia. Just before opening the abdomen, he should boldly pinch the skin with rat-toothed forceps, saying: "You are doing very well." He should in no circumstances ask, "Can you feel that?" or "Does it hurt you?", as inevitably the patient will say, "Yes". The absence of obviously painful response from the area pinched by the forceps is conclusive. The patient should always be warned that he will feel only the pressure of the operation.

"Non-Take" Spinal Analgesia.

Unhesitatingly, I would say that there is no such phenomenon as a "non-take" spinal anæsthetic, or a "rachi-resistant" patient. In all cases of failure the anæsthetist's technique is at fault, and he has probably not noticed that the needle was not quite in the canal, despite a drip from it; the "barbottage" technique makes this error impossible. Early in the series four so-called "non-takes" occurred, and on each occasion the proof that the central puncture was properly made was not conclusive and "barbottage" was not carried out.

Post-Anæsthetic Measures.

On the operating table, at the conclusion of the operation, the patient is instructed to take six deep breaths, with full inspiration, and advised to repeat these every waking hour. As he is still usually confused or euphoric from the premedication, ward instructions are issued to the following effect.

1. All spinal anæsthetic patients will be placed in the "head-low" position for four hours only after returning from the operating theatre, and then will be placed in Fowler's position or the position desired by the surgeon.

2. All patients who have had spinal anæsthesia are to be encouraged to move in bed and dissuaded from the traditional post-operative immobility. Even a half-left turn of the chest is of great value in aeration of the lungs and helps to prevent atelectasis (lung collapse); similarly leg movements assist in stirring up a stagnating circulation and preventing thrombosis.

3. All patients after spinal anæsthesia will as a routine measure be actively encouraged to take six to ten deep breaths with full chest expansion each waking hour. This procedure is to be supervised by the ward sister. In the case of high spinal anæsthesia (upper abdominal incisions) the physiotherapist is to be notified on the patient's return from the operating theatre, so that deep breathing instruction may be given.

4. In the case of high spinal anæsthesia, "Carbogen" will be administered for ten minutes every hour for four hours, and then ten minutes every four hours for twenty-four hours. In other cases, if it is considered necessary, "Carbogen" will be ordered by the surgeon or anæsthetist.

From the present series it was noticed that there was a great diminution in respiratory complications, and one feels that the results obtained by active respiratory efforts far outweigh the doubtful advantages of slightly increased lung ventilation resulting from the intranasal administration of "Carbogen" when this measure is used alone.

Prevention of Post-Anæsthetic Complications.

In the prevention of post-anæsthetic complications, first and foremost all reference to headaches should be avoided, particularly by the ward sister. A great percentage of spinal anæsthetic patients develop a "thick head", even after low spinal anæsthesia, for as long as forty-eight hours after spinal puncture; but no severe discomfort is present, and it is amazing how regularly in a cheery ward with an efficient sister and assistants the incidence of even mild "thick-headedness" is kept relatively low, in contrast with the incidence in a poorly conducted ward. Once again reassurance produces amazing results.

Complications of Spinal Analgesia.

Headache.

As has already been stated, a large percentage of patients develop "thick-headedness" in the first forty-eight hours; this is usually relieved by analgesics of the acetyl salicylic group. There are patients, however, who develop severe, persistent headache, made worse by reading or by assuming the erect position, and unrelieved by "A.P.C." *et cetera*. Ten of the series of 500 developed these symptoms; but almost without exception, these patients were neurotic suggestible types, of asthenic build, with a low threshold to pain. Three were relieved completely on the sixth day of the headache, one instantly by the intravenous injection of two millilitres of *aqua destillata*. Of the remainder, only two did not have their headache controlled between the third and sixth days by the exhibition of "A.P.C." and phenobarbitone (one grain twice a day). These two patients proved resistant to suggestion, to "A.P.C.", to phenobarbitone, to the intravenous injection

of ten millilitres of a 50% solution of glucose, also to the rectal injection of four ounces of a 50% solution of magnesium sulphate. The headaches, however, disappeared on the seventh day, in spite of treatment.

While I am of the opinion that there is a large psychogenic element in headache following spinal anæsthesia, especially the milder type of headache, it appears that in the production of the more severe type of headache laceration of the spinal meninges and the accompanying slowly self-sealing gap, especially after puncture with a large and blunt needle, is a factor. I would strongly recommend, therefore, that the finest spinal needles—say 22 gauge—shall be used and discarded when they lose their edge. In the series on which this article is based, army gauge numbers 17 and 19 were used, mostly 19. None of the spinal anæsthetic patients who suffered from headache manifested neck stiffness or rigidity; Kernig's sign was never elicited, nor were the superficial or deep reflexes altered.

Meningitis and Residual Paralysis.

There were no cases of meningitis or residual paralysis in the series.

Retention of Urine.

Retention of urine was no more common than after inhalational anæsthesia, and responded to the intramuscular injection of "Prostigmin" or "Doryl".

Respiratory Complications.

The incidence of respiratory complications was low after the introduction of regular, active breathing exercises early after operation, as previously described.

Posture in Bed.

The incidence of all complications, whether the patient was left in the head-low position for twenty-four or four hours after operation, was identical. As a routine measure I now get all spinal anæsthesia patients into Fowler's position (or the position that the surgeon desires) after four to six hours, as by then the vasomotor paralysis has worn off. In cases of severe abdominal infection, ruptured viscus *et cetera*, Fowler's position may be adopted even earlier, as long as the patient is watched carefully. The desirability of assuming this posture from the point of view of sepsis in the abdominal cavity is obvious; but the inculcation of "mobility" in the patient's mind is equally important from the point of view of the prevention of venous thrombosis and pulmonary atelectasis.

Conclusion.

I have avoided controversial, theoretical discussion in this article on analgesia; any dogmatism is the result of clinical observations made in this series of cases.

May I suggest the following golden rules: (i) reassurance of patient before, during and after anæsthesia, and adequate premedication; (ii) efficient "land-marking" and careful posturing of the patient—the essence of a good spinal puncture technique; (iii) supervised deep breathing exercises in the post-anæsthetic period as a routine measure.

Acknowledgements.

I am indebted to the Director-General of Medical Services for permission to publish this article, and to the staff of this Australian military hospital for cooperation at all times in the management of these spinal anæsthetic patients.

PENICILLIN THERAPY FOR TENDON SHEATH INFECTIONS OF THE HAND.

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TENDON sheath infections of the hand present a serious problem for four reasons. Firstly, they may produce a severe general toxæmia with rise of temperature and pulse rate, shivering and sweats *et cetera*. Secondly, the sheath infection may spread locally in the hand—for example, to other tendon sheaths or to one of the fascial spaces. Thirdly, stay in hospital and convalescence may be long and tedious and economically serious to the patient. Lastly, the end-results of the infection are often bad—for example, stiff finger, disability of the whole hand *et cetera*. In an endeavour to combat these problems, ten patients suffering from suppurative tenosynovitis of the hand and admitted to this hospital were given penicillin therapy.

Technique.

Under "Evipan" anæsthesia the whole hand is given a surgical preparation. With a tenotome two small transverse incisions about a quarter of an inch long are made (*a*) just proximal to the metacarpo-phalangeal crease and (*b*) just proximal to the distal interphalangeal crease. The incision is made through skin, subcutaneous tissue and fascia; the tendon sheath is identified and a tiny nick is made in it. One needle of about 18 bore is then inserted into each incision through the tendon sheath till the periosteum is reached. This ensures that the needle is actually in the sheath. Pus is then aspirated from the tendon sheath through either needle with a dry, sterile syringe, both to relieve tension in the sheath and to permit of cultivation of the infecting organism. One millilitre of penicillin solution containing 500 units per millilitre is then syringed through one needle till it appears through the other needle; the penicillin solution is thus washed through the infected sheath. The needles are withdrawn and both incisions are packed with dry, sterile packing gauze, to keep them open.

Subsequent Treatment.

Daily injections are then carried out, the patient being previously given sedation with morphine. In addition, 15,000 units of penicillin may be given intramuscularly every three hours. This administration may be continued for a varying total dosage, according to the progress of the patient (retrogression of the general toxæmia, reduction of the local infection).

Active movements of all fingers are started immediately with the penicillin therapy.

As the tendon sheath infection abates, it is found more and more difficult to inject the penicillin solution through the sheath, so the number of injections is reduced to one every second day and then gradually "tailed off" as the local condition improves and as the swabs become free from pathogenic bacteria.

Remarks on the Treatment.

1. Local penicillin therapy should be instituted immediately the diagnosis is made and before the organism has been identified bacteriologically.

2. The immediate institution of active movements of all the fingers is imperative in the restoration of function of the affected finger as well as that of the hand as a whole.

3. The relief of tension in the tendon sheath by the release of pus, effected either by spontaneous bursting of the pus through the tendon sheath or by the making of a nick with a tenotome into the sheath, materially aids the resolution of the infection, as well as allowing more adequate washing of the penicillin solution throughout the tendon sheath.

4. The method appears to have three disadvantages. Firstly, it is painful, and the patient is apprehensive and generally requires one-sixth to one-quarter of a grain of morphine half an hour before the injection. Secondly, the stay in hospital may seem long and tedious to the patient (but it is no longer than when the sheath is incised). Finally, the local injection of penicillin solution into the sheath may spread the infection if further tension is created in the tendon sheath, unless the solution is always washed through from one needle to the other and unless there is adequate drainage from the sheath as outlined above.

Reports of Cases.

CASE I.—M.S., aged nineteen years, was admitted to hospital on July 4, 1945. She was a waitress. One week previously she had pricked the volar surface of the middle phalanx of her right index finger. Two days prior to her admission to hospital the whole finger became swollen and painful, preventing her from sleeping. She also had a feeling of malaise and had lost her appetite.

FIGURE I.
Case I: Tenosynovitis of the right index finger; before penicillin therapy.

On examination the patient appeared ill. Her temperature was 99·2° F. and her pulse rate was 92 per minute. Tenosynovitis of the right index finger and right axillary adenitis were present. The leucocytes numbered 20,000 per cubic millimetre.

She was given systemic and local penicillin therapy on the day of her admission to hospital. In twenty-four hours she was feeling much better generally, and in forty-eight hours she was eating and sleeping well. The adenitis had disappeared. The finger was much less swollen and had some degree of movement in the interphalangeal joints. On July 8 the temperature and pulse rate were normal, the swelling of the finger had subsided, and the tenderness had almost gone; much better movements were displayed at the interphalangeal joints. Both local and systemic penicillin treatment was discontinued. On July 10 there was some limitation of full flexion; otherwise the finger was normal. When the patient was examined ten days later she had perfect function in the finger.

This patient was given 500,000 units of penicillin intramuscularly and 2,000 units locally. Pus obtained from the sheath yielded a growth of *Staphylococcus aureus*, coagulase-positive. The period of incapacity was approximately three weeks. The end-result was a return to perfect function of the finger.

FIGURE II.
Case I: Tenosynovitis of the right index finger; three weeks later.

CASE II.—J.C., aged forty-eight years, was admitted to hospital on July 16, 1945. He was a carpet layer. Five days previous to his admission to hospital he had run a tack into the volar aspect of the proximal phalanx of his right thumb. On the morning of his admission his right hand became swollen and he experienced pain extending from the thumb and little finger up his forearm. He felt well except for the pain in his hand.

On examination the patient looked pale. His temperature was 101·6° F. and his pulse rate was 88 per minute. Tenosynovitis of the right thumb and little finger was present, together with tenderness over the Parona space. The leucocytes numbered 15,000 per cubic millimetre.

He was given systemic and local penicillin treatment on the day of his admission to hospital. Four days later his temperature was 102° F. and his pulse rate 88 per minute. The thumb and fifth finger were not so swollen and tender, and movements at the joints were now possible. On July 25 the temperature and pulse rate were normal, and there was a vast improvement in the movements of the thumb; but movements of the little finger were improving very slowly. Local injections of penicillin into the tendon sheath of the thumb were discontinued. On July 27 the thumb was practically normal in size and free from tenderness; movements of the thumb were also nearly normal. The fifth finger was still a little swollen, but joint movements were somewhat improved. On August I there was still some impairment of full flexion and extension of the fifth finger; the thumb was normal. The patient was examined at intervals during the next two months; during this time he had been assiduously practising active movements of all fingers of the right hand. He had almost complete extension and flexion of the little finger, but was unable to flex the terminal interphalangeal joint.

This patient was given 500,000 units of penicillin intramuscularly and 5,000 units locally into the thumb tendon sheath, and 6,000 units into the tendon sheath of the little finger. Pus obtained from both sheaths yielded on culture *Staphylococcus albus* and indifferent streptococci, and a few colonies of *Staphylococcus aureus*. The total period of incapacity was approximately two months. The end-result was a return to perfect function of the thumb and impaired function of the little finger.

Conclusion.

The four problems which prompted the treatment may be used to classify the results obtained in response to the treatment.

General Toxæmia.—In general, all patients who exhibited signs of toxæmia lost them in about twenty-four to forty-eight hours. A high temperature and increased pulse rate took longer to subside (on an average, four days).

Local Spread of Infection.—In one case the tendon sheath infection locally treated with penicillin threatened to spread to an adjacent web space during the forty-eight hours following the institution of treatment; therefore treatment was discontinued and the tendon sheath was incised. In the remainder of the cases the infection remained localized to the tendon sheath.

Prolonged Stay in Hospital and Convalescence.—In most instances the duration of stay in hospital was three to four weeks; a further period of one to two weeks off duty was required. In one case the stay in hospital was one week and a further period of two weeks off duty was required.

The End-Results of the Infection.—In a total of ten cases there were five cases in which full function of the digit was recovered, three cases of impaired function with some limitation of full flexion and full extension, and two cases of stiff fingers, in both of which the tendon sheaths had to be incised. In no case was a digit lost or a hand disorganized, and in no case did osteomyelitis or arthritis occur.

Summary.

The treatment by penicillin, administered both locally and systemically, of a small series of patients suffering from tenosynovitis of the hand is detailed. The results obtained in combating the problems of general toxæmia, local spread of infection, prolonged stay in hospital and prolonged convalescence are reviewed.

Acknowledgements.

I am indebted to Dr. John Turner and Dr. Paul Jones for permission to publish this report.

STAINED SMEARS FOR THE RAPID DIAGNOSIS OF INFECTIONS DUE TO STREPTOCOCCUS HÆMOLYTICUS GROUP A FOLLOWING CHILDBIRTH AND ABORTION.

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THE methods commonly employed for the detection of *Streptococcus hæmolyticus* group A (Lancefield) depend on the cultivation of the organism, with the result that there is usually an interval of twenty-four hours, and sometimes forty-eight, between the collection of the specimen from the patient and the identification of a group A strain. This delay is unfortunate in a midwifery hospital, where the earliest possible recognition of such an infection is essential to ensure the detection of possible carriers and to stress the necessity for strict isolation of the infected patient.

Earlier work at the Women's Hospital, Melbourne (Butler and Hill[1]), showed that under certain conditions of artificial cultivation practically all the strains of *Streptococcus hæmolyticus* group A causing the serious infections following childbirth and abortion were heavily capsulated. This observation, coupled with our success in using direct smears for the diagnosis of the severe *Clostridium welchii* infections following abortion,[2][3] suggested that it might be possible to detect a severe *Streptococcus hæmolyticus* group A infection by the examination of vaginal or cervical smears. Results have exceeded expectations.

Methods.

In this hospital the routine bacteriological investigation of puerperal and abortional infections includes the examination of a Gram-stained smear and the preparation of aerobic and anaerobic cultures from either a vaginal or a cervical swab. Lancefield grouping of the hæmolytic streptococci is performed with formamide extracts prepared according to the method of Fuller.[4]

To investigate the possibility of detecting *Streptococcus hæmolyticus* group A in direct smears, two cervical or vaginal smears were obtained from each patient. One smear was stained with Jensen's modification of Gram's stain and the other with 0·5% Leishman's stain in methyl alcohol. The latter stain had proved satisfactory for the staining of the capsules produced in young cultures by strains of *Streptococcus hæmolyticus* group A. The Leishman stain was allowed to act for three minutes, diluted with an equal volume of tap water or phosphate buffer solution at pH 7·0 and left on for a further three minutes before the slide was washed. In Melbourne tap water has given excellent results. The smears were examined with a Zeiss inclined binocular microscope by means of a 1/12 oil immersion lens and ×7 eyepieces.

Material Studied.

Smears stained by the methods of Gram and Leishman were examined; these smears came from 554 puerperal or abortional patients, in both smears and cultures from whose genital tract diplococci were found. *Streptococcus hæmolyticus* group A was cultivated from 77 of these patients, and hæmolytic streptococci belonging to other Lancefield groups from 41. Culture of material from the remaining 436 patients produced anaerobic streptococci, aerobic non-hæmolytic streptococci or staphylococci. Anaerobic streptococci were present in 60% of the cultures from the whole series.

Results of Examination of Smears.

Gram-Stained Smears.

In cases in which *Streptococcus hæmolyticus* group A was the predominant organism in the cultures, in the direct smear were found Gram-positive, spherical cocci, arranged mainly in pairs or short chains. The cocci were similar in size to those seen in smears made from broth cultures of *Streptococcus hæmolyticus* group A.

Similar cocci were seen in some of the smears associated with the presence of hæmolytic streptococci of groups B, C and G, and with some of the non-hæmolytic aerobic streptococci. The anaerobic streptococci usually had a different appearance in vaginal and cervical smears stained by Gram's method. In shape they were either much smaller or ovoid, and the small cocci frequently failed to retain the Gram stain. These morphological and staining differences, together with the large number of pus cells which were present in most of the smears from patients infected with anaerobic streptococci, helped to differentiate such infections from those caused by the hæmolytic streptococci.

Leishman-Stained Smears.

Stained by Leishman's method, typical capsulated strains of *Streptococcus hæmolyticus* group A appeared as small, dark purple, almost black cocci surrounded by pinkish-red or heliotrope capsules. The appearance of the capsule varied. In some preparations were seen deeply stained, dense capsules sometimes completely obscuring the cocci themselves; in others the capsular material stained faintly and had the appearance of a more fragile structure. Again, in some the capsular material appeared to be disintegrating, and many of the cocci were uncapsulated or had only fragments of capsule. Only in the severe infections were all or nearly all the cocci clearly capsulated. The cocci of capsulated strains which took up Leishman's stain were smaller than they appeared in the Gram-stained smear.

The results obtained are given in Table I. Of the smears from the 77 cases in which *Streptococcus hæmolyticus* group A was present in culture, in 50 well-stained capsules were present and in eight faintly stained capsular material was found around some of the cocci. Of the smears from the 477 cases in which group A streptococci were not cultivated, in two, heavily capsulated diplococci and streptococci were present, and in three, a few cocci surrounded by faintly stained capsules.

TABLE I.

Presence or Absence of *Streptococcus Hæmolyticus*.	Capsulated Cocci in Smear. (Number of Cases.)
Streptococcus hæmolyticus group A present in culture (77 cases)	58
Hæmolytic streptococci other than group A present in culture (41 cases)	0
No hæmolytic streptococci in culture (436 cases)	5

The Relationship of Capsulation in a Direct Smear to Capsulation in Culture.

Fifty strains of *Streptococcus hæmolyticus* group A were tested for capsulation in two-hour serum broth cultures as soon as the strain was isolated in pure culture (that is, one to three days after the specimen had been collected from the patient). If capsules were not demonstrated in Leishman-stained smears from the serum broth, a few drops of the culture were transferred to freshly defibrinated human blood, the mixture was incubated for forty minutes and the preparation was examined for capsulated cocci. If capsules were not found under these conditions, the strain was recorded as not capsulated in culture. Thirty-seven strains out of the fifty tested showed distinct capsules. The correlation between capsulation in the direct smear and capsulation in culture is given in Table II.

In four cases capsules were not demonstrated in culture of the freshly isolated strain, although in the direct smear capsulated cocci typical of *Streptococcus hæmolyticus* group

[1] Work done with the aid of a grant from the National Health and Medical Research Council.

A had been found. In three instances the capsules seen were only slight structures, but in the fourth they were well shown. In the last-mentioned and in two of the former, *Streptococcus hæmolyticus* group A was the only organism present in culture from the vagina, and in the direct smears only one type of cocci was found. In the fourth case anaerobic streptococci were also present, but these cocci failed to produce capsules in serum broth

TABLE II.

Capsulation in Smear and Culture.	Number of Strains.
Capsulated in direct smear, capsulated in culture ..	32
Capsulated in direct smear, not capsulated in culture ..	4
Not capsulated in direct smear, capsulated in culture ..	5
Not capsulated in direct smear, not capsulated in culture..	9

cultures of various ages. It seems probable, therefore, that the capsules seen in the direct smears were produced by the hæmolytic streptococci.

The results of testing broth cultures of these strains for hyaluronidase offer a possible explanation of the finding that strains may be capsulated in the direct smear but not in culture. Hyaluronidase production was tested by the mucin clot prevention test (McClean *et alii*[5]). None of the strains which were capsulated in culture produced detectable amounts of hyaluronidase; but four of the nine uncapsulated strains were active producers of this enzyme, and three out of the four strains which were capsulated in the direct smear but not in culture produced small amounts. If the production of hyaluronidase is accepted as the explanation of the finding that strains may be capsulated in the direct smear but not in culture, it suggests that in the tissues of the host this enzyme was not produced or else was sufficiently inhibited to permit the development of capsules. This latter supposition is in keeping with McClean's[6] observations in experimental infections in mice, from which he concluded that there is some in-vivo inhibition of the action of hyaluronidase on streptococcal capsules.

Discussion.

The number of positive results which can be obtained by the use of direct smears depends primarily on what proportion of the infections due to *Streptococcus hæmolyticus* group A are caused by strains which produce capsules in the tissues of the host. Although capsulation in culture is not an absolute guide to capsulation in direct smear (see Table II), it does provide an approximate indication of the position. In this hospital during the last eight years, 245 strains of *Streptococcus hæmolyticus* group A isolated from the genital tract have been tested for capsulation in culture. In 1938 and 1939, 91 strains were examined and only 36 gave positive results; in 1940 and 1941, 41 out of the 50 strains tested were capsulated; in 1942 and 1943, 35 out of 54 strains were capsulated; and in 1944 and the first half of 1945, 37 out of 50 strains associated with puerperal and abortional infections produced stainable capsules in young cultures.

The figures for the years 1940 to 1945 are reasonably representative of the group A infections that occurred in Melbourne. The majority of the patients studied over that period were already infected when admitted to this hospital, and the infections that occurred after admission to hospital were sporadic, and with the exception of three cases, not the result of infection from a common source.

During the years 1938 and 1939, however, three small epidemics occurred in the hospital. Eighteen patients were infected with Griffith type 22, six with type Woodbury (Keogh and Simmons[7]) and six with an unnamed type. All the strains belonging to these three types were uncapsulated variants, and their inclusion in the figures for 1938-1939 accounts for the low proportion of capsulated strains recorded for that period.

The number of streptococci present on the swab is also a factor in the obtaining of positive results from examination of a smear. In most puerperal and abortional infections due to *Streptococcus hæmolyticus* group A, a heavy growth of this organism is obtained from the vaginal or cervical swab; but in some instances, in my experience usually in cases in which many anaerobic streptococci are also present, only a small number of colonies of hæmolytic streptococci appear on the plate cultures. Of the nineteen cases reported in this paper in which *Streptococcus hæmolyticus* group A was present in culture but not detected in the direct smear, there were ten in which the cultures produced only a few colonies of hæmolytic streptococci, whereas among the 58 cases in which examination of smears gave positive results, in all but two a heavy growth was obtained.

Few of the cocci other than *Streptococcus hæmolyticus* group A, which are associated with infections of the birth canal, produce recognizable capsules. Reference to Table I shows that in not one of the 41 cases in this series in which hæmolytic streptococci other than those of group A were cultivated, were capsulated cocci found in the direct smears. Of these cases, twelve were infections with streptococci belonging to group B, eight with streptococci of group C, seven with streptococci of group G and fourteen with streptococci of other groups. Capsulated strains of group B streptococci have been described; but in my experience it has been impossible to demonstrate capsules in cultures of the group B streptococci associated with human infections, and the eight strains included in this series were no exception.

Of the hæmolytic streptococci other than *Streptococcus hæmolyticus* group A, those belonging to group C are the most often capsulated in culture. But capsulated organisms were not seen in the direct smears from the eight cases in this series in which group C strains were obtained on culture.

Capsulated cocci suggestive of infection with *Streptococcus hæmolyticus* group A were seen in direct smears in only five out of the 436 cases in which no hæmolytic streptococci were grown in culture. This error of only slightly more than 1% is too small seriously to impair the usefulness of the method. No explanation was found for these discrepancies; the strains of anaerobic streptococci and staphylococci recovered from the five patients failed to produce capsules in culture.

There was no instance of pneumococcal infection in this series of cases; but the occurrence of such infections should not lead to falsely positive results when direct smears are used for the detection of *Streptococcus hæmolyticus* group A, since the capsules of the two organisms have different staining properties. The streptococcal capsule stains poorly with Muir's stain and well with Leishman's stain, while the capsule of the pneumococcus stains readily by Muir's method and often not at all with Leishman's stain.

In the examination of Leishman-stained smears for capsules a binocular microscope has been found essential, except when the capsulation was particularly heavy. It is thought that the method should be recommended only to those using such a microscope.

In the experience of this laboratory the use of direct smears for the presumptive detection of *Streptococcus hæmolyticus* group A has been successful in all but one of the serious puerperal and abortional infections due to this organism, and also in many of the milder cases. No significant difference was observed between vaginal and cervical smears.

In some instances direct smears have indicated the presence of *Streptococcus hæmolyticus* group A in the genital tract before the development of fever or other typical symptoms of infection. After the detection on the same day of two cases of puerperal infection due to *Streptococcus hæmolyticus* group A, vaginal smears were examined from 29 women who had been delivered in this hospital on the three days following that on which the two infected patients were delivered. These 29 patients were afebrile

at the time the smears were made. In the smears from one patient were seen capsulated diplococci resembling *Streptococcus hæmolyticus* group A. Twenty hours after the vaginal smears were made this patient's temperature rose to 102·4° F. and the pulse rate to 120 per minute. From not one of the other patients were positive results obtained in the examination of a smear, nor was *Streptococcus hæmolyticus* group A grown in the vaginal cultures made during the puerperium. Similarly, among the patients with abortional infections due to *Streptococcus hæmolyticus* group A there were three who were not clinically infected on admission to hospital; but in routine smears taken on their admission, capsulated diplococci were found. Each of these patients developed symptoms of infection the following day.

In this laboratory direct smears have also been successfully used for the detection of *Streptococcus hæmolyticus* group A in cases of tonsillitis, cellulitis, breast abscess, suppurative arthritis, *otitis media* and post-operative wound infection.

Summary.

1. To investigate the possibility of detecting *Streptococcus hæmolyticus* group A in direct smears, vaginal or cervical smears stained by Gram's and Leishman's methods were examined from 554 puerperal or abortional patients, in material from all of whom diplococci had been detected in both smears and cultures.

2. Of the smears examined in 77 cases in which *Streptococcus hæmolyticus* group A was cultivated from the genital tract, in fifty well-stained capsules were present and in eight faintly stained capsular material around the cocci. Only one of the nineteen patients, smears from whom failed to show capsulated diplococci, suffered from a severe infection.

3. Capsules were not seen in the smears examined in 41 cases in which hæmolytic streptococci other than *Streptococcus hæmolyticus* group A were cultivated.

4. Capsulated cocci were present in the smears in only five of the 436 cases in which coccal organisms other than hæmolytic streptococci were present in the genital tract.

5. In fifty cases of *Streptococcus hæmolyticus* group A infection, a comparison was made between the occurrence of capsulation in direct smear and that of capsulation in culture. Thirty-two strains produced capsules in both culture and smear, five were capsulated in culture but not in the direct smear, nine failed to produce capsules in either culture or smear, and four produced capsules in the direct smear but not in culture. Three of the four last-mentioned strains produced small amounts of hyaluronidase when grown in broth, whereas not one of the strains which were capsulated in culture produced detectable amounts of this enzyme.

6. In four cases direct smears indicated the presence of *Streptococcus hæmolyticus* group A in the genital tract before the development of fever or other typical symptoms of infection.

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Reports of Cases.

REPORT OF A CASE OF SALMONELLA BLEGDAM SEPTICÆMIA AND SUPPURATIVE PERICARDITIS WITH RECOVERY.

By J. F. C. C. COBLEY,
Major, Australian Army Medical Corps,
AND
T. E. WILSON,
Major, Australian Army Medical Corps.

THE rarity of this case and the successful outcome seemed sufficient to warrant its publication.

Clinical Record.

G.K., aged thirty-four years, was admitted to hospital on August 28, 1944, with the provisional diagnosis of infective hepatitis. For fourteen days he had complained of headache, nausea and pyrexia and had been slightly jaundiced. On the day of his admission to hospital he was still slightly jaundiced and his urine contained bile salts and pigments. As far as possible fatty foods were eliminated from the diet, and an aperient was given each morning. During the following week the pyrexia and nausea persisted, the jaundice decreased and the liver edge was tender and extended just below the right costal margin. By September 6 he felt better and was afebrile. Bile salts and pigments were no longer detected in the urine, although a few red blood cells and cellular casts were present. The temperature (Figure I) did not exceed 99° F. for the next sixteen days, although he complained of epigastric discomfort on September 11 and of diarrhœa on September 20. The fæces were then semifluid, but no blood, mucus, cellular exudate, amœbæ, cysts or non-lactose-fermenting organisms were demonstrated. Similar negative results were obtained on October 3, 5, 7 and 9, 1944, and on February 14, 1945.

On September 22, 1944, the temperature rose to 100° F. and pain in the right side of the chest and a dry cough developed. The only abnormality found on examination was a slight increase of vocal resonance at the base of the right lung. After a day the pain passed off, but the slight icterus persisted, and on October 2 the diarrhœa recurred. Three days later the patient again complained of pain in the chest, cough and malaise, and his temperature was 104° F. At the base of the left lung the vocal resonance was increased and the breath sounds were harsh. For the next six days, five grammes of sulphapyridine were exhibited per day. On October 5 X-ray examination of the chest revealed no abnormality of the lungs, but the left side of the heart appeared to be enlarged.

By October 7 the patient's general condition had deteriorated; the pulse rate was 120 per minute and the respirations numbered 30 per minute, and whereas previously the heart sounds had appeared normal, soft systolic and diastolic bruits were audible at the mitral area. Nutrient broth was inoculated with a specimen of blood and incubated for four days, a pure growth of *Salmonella blegdam* being obtained. On October 11 a faint systolic bruit was present at the aortic area. The urine did not contain bile salts or pigments, albumin, cells, casts or organisms. Blood agglutination tests showed a titre of 1/40 to *Salmonella typhi* "H" suspension and of 1/320 to *Salmonella typhi* "O". No agglutination was produced by paratyphoid organisms. Suspensions of other organisms were not available.

For the next week the patient's general condition remained unchanged. On October 18 the cardiac bruits were no longer audible. The signs at the base of the left lung increased in extent, and by October 24 the signs in this area had changed to a dull percussion note, tubular breath sounds and increased vocal resonance and fremitus. A further cultural examination of the blood was attempted, but no growth of microorganisms was obtained. No reaction

followed a blood transfusion on October 20, but a transfusion given on October 25 was followed by a rigor and a rise in temperature to 105·4° F. The next morning the patient felt more comfortable. (The results of the blood counts are given in Table I.) However, three days later (October 29) his condition again deteriorated. The signs at the base of the left lung extended over a larger area, the percussion note was flat and dull, the breath and voice sounds were faint and the apex beat was displaced to the right. There was a small amount of thin frothy sputum, examination of which revealed no acid-fast bacilli or non-lactose-fermenting organisms. Sulphadiazine was exhibited in doses of five grammes per day for the next six days. By November 2 the signs of the pleural effusion had decreased in extent, but the lower lumbar region had become œdematous. No moist sounds were audible in the lungs, and the ankles were not œdematous. The fluid intake was restricted to twenty ounces per day. Fifteen grains of ammonium chloride were given and one millilitre of "Salyrgan" was injected intramuscularly.

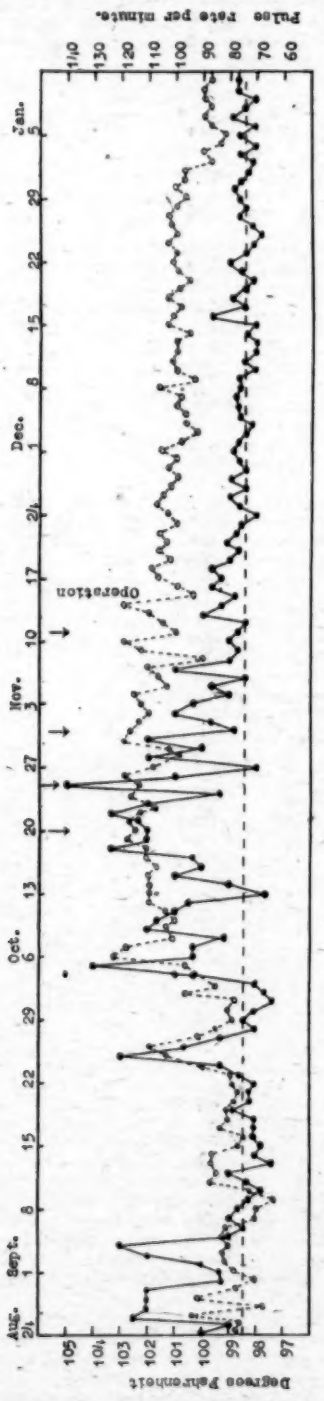


FIGURE I.

Temperature chart (continuous line) and pulse chart (interrupted line). The days on which transfusions were given are indicated by arrows.

TABLE I.
Results of Blood Counts.

Date.	Hæmoglobin. (Grammes *per Centum.*)	Erythrocytes. (Millions per Cubic Millimetre.)	Leucocytes. (Thousands per Cubic Millimetre.)	Neutrophile Cells. (Percentage.)	Eosinophile Cells. (Percentage.)	Lymphocytes. (Percentage.)	Monocytes. (Percentage.)
31. 8.44	—	—	4·5	29	—	69	2
27. 9.44	—	—	4·1	39	—	57	4
5.10.44	—	—	3·2	74	—	24	2
7.10.44	—	—	8·1	64	—	36	—
9.10.44	11·2	3·85	4·2	66	—	30	4
21.10.44	11·6	4·32	—	—	—	—	—
26.10.44	10·5	—	—	—	—	—	—
27.10.44	11·2	3·45	—	—	—	—	—
31.10.44	10·5	3·80	7·5	77	2	20	1
2.11.44	13·3	4·92	10·7	81	2	17	—
7.11.44	11·9	4·52	12·2	—	—	—	—
13.11.44	15·2	5·20	15·5	—	—	—	—
15.11.44	13·3	4·36	—	—	—	—	—
20.11.44	13·3	4·35	11·2	—	—	—	—
30.11.44	13·3	4·35	7·8	83	—	14	3
1. 1.45	11·2	3·69	7·8	76	6	16	2
12. 2.45	13·3	4·43	12·6	65	5	30	—

By November 4 the œdema of the back and the left pleural effusion were subsiding, but the ankles were now slightly œdematous and the signs of a small right pleural effusion had developed. The next day the latter had increased, but the patient was not dyspnœic. "Salyrgan" was again given on November 11, and again no diuresis resulted. The right pleural effusion continued to increase in extent, and on November 12 the apex beat was displaced to the left. Twelve ounces of clear, sterile, straw-coloured fluid were removed from the right pleural cavity. The pulse was of poor volume, and the patient's general condition had still further deteriorated. Digitalis therapy was instituted, and he was rapidly digitalized by the Eggleston method with maintenance doses of fifteen minims of tincture three times a day.

For the next two days his condition remained unchanged; but by November 14 the œdema of the back and ankles had increased, the pulse was weak and thready, the pulse rate was 116 per minute, and the right pleural effusion had increased. Twenty-seven ounces of clear, sterile, straw-coloured fluid were removed from the right pleural cavity. Another injection of "Salyrgan" was given. That afternoon he vomited several times and became dyspnœic. The systolic blood pressure was then 90 millimetres of mercury and the diastolic pressure 80, the apex beat was diffuse and conducted laterally, the heart sounds were faint and the jugular veins were distended. The pericardial sac was aspirated through the anterior end of the fourth left intercostal space, and fifteen ounces of turbid, yellow fluid under pressure were removed. After the aspiration 15,000 units of penicillin were injected into the pericardial cavity. Within an hour the patient's condition improved, the blood pressure rose to 118 millimetres of mercury (systolic) and 88 (diastolic), and the dyspnœa decreased. The pericardial fluid contained numerous pus cells and a few Gram-negative bacilli, which were identified as *Salmonella blegdam*. The organism was found to be sensitive to penicillin in a concentration of 62·5 units per millilitre.

The following morning (November 15) his general condition was poor; numerous extrasystoles were occurring, and the digitalis dosage was reduced to thirty minims of the tincture per day. Aspiration of the pericardial sac was again performed at 10 a.m., and fifteen ounces of fluid similar to that obtained the previous day were removed. After the paracentesis the blood pressure was 116 millimetres of mercury (systolic) and 62 (diastolic).

Operation was undertaken. The patient was propped up in bed, and at 2 p.m. a pericardotomy was performed (T.E.W.); one-quarter of a grain of morphine had been given an hour previously. Under local anæsthesia with a 1% solution of "Novocain", an incision three inches long and convex to the right was made to the left of the sternum, and the fourth left costal cartilage was removed. The parietal pleura was displaced laterally, and forty ounces of thin pus were aspirated from the pericardial cavity. An incision one inch long was made in the parietal pericardium, small pieces of fibrin were removed, and a soft rubber tube with a quarter-inch lumen was inserted into the pericardial cavity. The upper and lower ends of the wound were approximated with sutures. This tube was connected to an underwater seal.

Except for some dyspnœa and tachycardia for a few minutes after the pericardium was opened, the operation caused no discomfort, and the patient slept better that night than in the past few weeks. The next morning he became dyspnœic, but this condition was immediately relieved by clamping off the drainage tube. Because the dyspnœa recurred whenever the clamp was loosened, the tube was removed and replaced with an apparatus consisting of two tubes sutured together and passed through and glued to the centres of pieces of dental dam and of sponge rubber each six inches in diameter (Figure II).

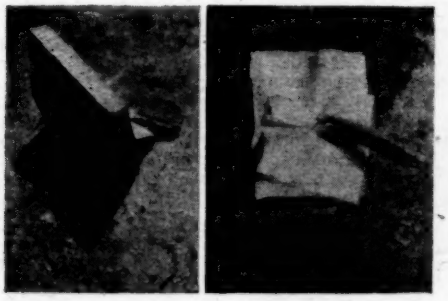


FIGURE II.

Two views of the assembled tubes, sponge rubber and dental dam that were used for the closed drainage of the pericardium.

This apparatus was adapted from that described by E. R. Trethewie in *The British Journal of Surgery*, Volume XXVII, 1939-1940, page 58. One of the tubes was connected to a "Soluvac" flask, filter and dropper, and a solution of penicillin (100,000 units per litre of saline solution) was run into the pericardial cavity at the rate of two litres in twenty-four hours. The other tube was connected to a large bottle, to which were also attached a suction pump and a mercury manometer (Figure III). At first a negative pressure of two inches of mercury was maintained, but this caused discomfort in the wound and the drainage fluid became blood-stained. The discomfort and hæmorrhage were abolished when the pressure was changed to one inch of mercury. Morphine was given as required.

On the second day after the operation (November 17) an underwater seal was established, and the suction was discontinued without a recurrence of the dyspnœa. During the first seventy-two hours after operation 16·5 ounces of pus were collected.

On the third day the fluid balance was satisfactory and the pulse was regular and of good volume. The dressing became loose; dyspnœa and tachycardia rapidly developed, but these were as quickly relieved by readjustment of the dressing. Twenty ounces of clear, sterile, straw-coloured fluid were aspirated from the right pleural cavity.

On November 19 examination of the chest revealed an enlarged pericardial shadow and a small effusion at the base of the right lung.

During the following week his condition slowly but steadily improved; the pyrexia lessened, the œdema of the ankles and the distension of the jugular veins subsided, and the fluid balance was satisfactory. In addition to the slow irrigation with penicillin solution, the pericardial cavity was rapidly washed out with saline solution twice a day. By November 26 the pericardial washings were only faintly turbid and contained a few pus cells and organisms which were identified as *Bacillus coli* and *Bacillus pyocyaneus*. No non-lactose-fermenters were isolated. The pericardial sac was then washed out with a pint of 1% solution of acetic acid, and then the irrigation with penicillin and saline solution was resumed. X-ray examination of the chest revealed a small right-sided pleural effusion, the heart was almost normal in size, and there was a small opaque area in the middle zone of the left lung, although no abnormal clinical signs could be detected at the site.

On November 29 another eighteen ounces of clear, sterile, straw-coloured fluid were removed from the right pleural cavity. Since the strapping on the chest wall had loosened, the tubes were changed. The wound was found to be clean and granulating. The apex beat was still one inch outside the nipple line; the heart sounds were regular but faint and no bruit was audible.

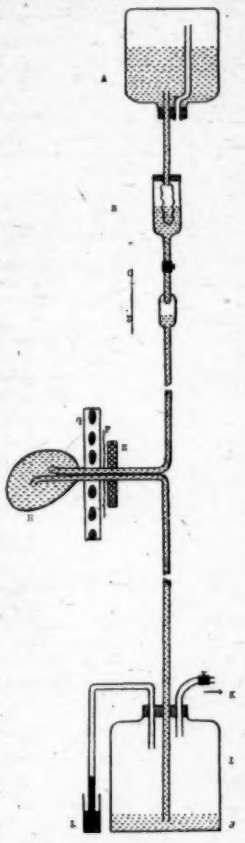


FIGURE III.

A diagram of the apparatus used for the continuous irrigation and aspiration of the pericardium. A: reservoir of penicillin solution; B: filter set; C: regulating clamp; D: dropper; E: sponge rubber; F: dental dam; G: chest wall; H: pericardial sac; I: one gallon bottle; J: "Dettol" solution; K: to suction pump; L: mercury manometer.

The improvement in the patient's general condition was maintained, and by December 12 the purulent discharge from the pericardium had decreased from six ounces a day to less than one ounce per day. As he was then complaining of discomfort around the wound, the drain tubes were removed and a eusol dressing was applied. The wound was clean and healing, but there was a small tender hyperæmic area over the lower left costal cartilages, presumably due to pressure of the sponge. No pathogenic organisms were recovered from a swabbing of the wound.

By December 19 X-ray examination of the chest revealed normal lung fields; but the pericardial shadow was still slightly enlarged and the thoracic part of the spine was convex to the right.

Thereafter his physical condition continued to improve, the wound gradually healed, the discharge from the wound lessened and he gained a few pounds in weight. The digitalis therapy was stopped on January 6, 1945, and on

January 20 he was able to sit out of bed. The systolic blood pressure was then 100 millimetres of mercury and the diastolic pressure 74. The thoracic scoliosis increased, and exercises were commenced to overcome this. A further swabbing from the wound contained no pathogenic organisms. The clinical signs over both lungs were normal, but the pericardium was still slightly enlarged, as shown by percussion and by X-ray examination.

By February 7 the patient was able to walk without dyspnœa, and there was no recurrence of the œdema. However, a few minims of seropurulent discharge were still present on the dressing each day. As he was becoming depressed mentally because of the length of his stay in hospital, and as he was quite able to stand the journey, he was evacuated to the mainland on February 15.

Discussion.

Salmonella blegdam, a variant of *Salmonella enteritidis*, was first isolated from the blood of a patient suffering from pneumonia at the Blegdam Hospital, Copenhagen, in 1929, and was reported by F. Kaufmann in 1935 in the *Zeitschrift für Hygiene und Infectionskrankheiten*, Volume CXVII. Recently other cases of infection due to this organism have been described by N. Atkinson *et alii* in *The Australian Journal of Experimental Biology and Medical Science*, Volume XXII, 1944, at page 203. The organisms isolated in this case were also identified by them.

Noteworthy features of this case are the jaundice coincident with the onset of the illness, the afebrile period of sixteen days after the initial stages, and the failure to isolate the organism from the fæces even in the presence of diarrhœa and from the sputum in the presence of a pulmonary lesion.

Although it was performed under local anæsthesia, the pericardotomy occasioned little discomfort; the happy result obtained thus justified the performance of what appeared to be an ante-mortem gesture. The post-operative pulmonary and cardiac distress, which was immediately relieved by the sealing off of the pericardial cavity, is comparable with that accompanying early open drainage of an *empyema thoracis* in cases in which mediastinal stability has not been attained. A further similarity between this case and such empyemata is that early operation may be rewarded by a cure if an efficient closed drainage is maintained till the mediastinum becomes stabilized.

The rapidity with which the salmonella disappeared from the pericardial fluid was gratifying, and was probably partly due to the use of penicillin in the irrigating fluid.

With regard to the ultimate prognosis, the chief worry would seem to be the development of a constrictive pericarditis, and it can only be hoped that the operation was performed sufficiently early to prevent this.

Acknowledgement.

Our thanks are due to Major-General S. R. Burston, Director-General of Medical Services, and to our commanding officer, Lieutenant-Colonel W. E. E. Langford, for permission to publish this article, and also to Miss Nancy Atkinson, of the Institute of Medical and Veterinary Science, South Australia, for the identification of the organism.

PENICILLIN IN PRE-OPERATIVE AND POST-OPERATIVE OPHTHALMIC SURGERY.

By T. Boyd Law, F.R.A.C.S. (Oph.), D.O.M.S. (England),
Lismore, New South Wales.

With what dismay does the ophthalmic surgeon at the first dressing after cataract extraction view a steamy anterior chamber, swollen yellow wound and violently inflamed eye with much mucopurulent discharge! Such a picture usually spells complete loss of the eye.

Case I.

I observed the condition described above some time ago in a patient whose conjunctival sac had yielded persistently unsuitable cultures of microorganisms. After some weeks of treatment a favourable enough culture was obtained; but nevertheless and in spite of all care the post-operative appearances were as described above. Intensive treatment with penicillin was instituted by intramuscular injection (100,000 units in six hours) and by drops (strength of 1,000 units in one millilitre) instilled into the eye every hour. Within eight hours the whole picture had changed and the patient made an uninterrupted recovery. It cannot be proved that he had been heading for an intraocular infection, but I am satisfied.

Case II.

I was thinking of this case when I received a letter from the relatives of a former patient asking if penicillin would make it safe for him to have an operation on his eye. The story is as follows.

The patient, Mr. J.J., aged seventy-five years, was first examined in February, 1941. He had a mature cataract in the right eye. He said that the left eye had been lost in 1936 as a result of infection following cataract extraction. There was a shallow sinus under the left eyebrow, and he stated that this came a year after he lost his eye following an abscess in the orbit. The left socket was small and contracted, and some mucopurulent discharge was present. The right conjunctival sac was also unhealthy with velvety conjunctiva and considerable mucopurulent discharge. Argyrosis was present from evident previous attempts to clean up the chronic conjunctivitis. There was a good deal of nasal discharge on both sides, and the patient gave a life-long history suggestive of chronic sinusitis with accompanying chronic bronchitis.

A start was made to try to clean up the conjunctival sac, and although the general appearance improved, it was never possible to obtain a culture which could be considered to indicate a safe enough operating field. The treatment adopted included painting of the lids with silver nitrate, irrigation of the tear sac, and injection of the sac with perchloride of mercury (1 in 6,000 in "Vaseline"). The whole gamut of drops including the then known sulphonamides was used. The following is a fair sample of the results of the many cultures made from his conjunctival sac:

February 28, 1941: 23 colonies of *Staphylococcus aureus*.
March 5, 1941: numerous colonies of *Staphylococcus aureus*.
March 7, 1941: eight colonies of *Staphylococcus aureus* and four colonies of *Staphylococcus albus*.
March 24, 1941: numerous colonies of *Staphylococcus aureus*.
April 3, 1941: more than 20 colonies of *Staphylococcus aureus* and *Staphylococcus albus*.
April 17, 1941: more than 20 colonies of *Staphylococcus aureus*.
September 24, 1941: numerous colonies of *Staphylococcus aureus*.

After the patient had spent two months in hospital, I was constrained to send him away to have home treatment for a prolonged period.

I heard no more of him until October, 1945, when his family asked me whether penicillin would make the operation safe. Mr. J. had been quite blind for nine years now, and everybody was prepared to take some risk in the matter. His right eye was much the same as before; culture produced 17 colonies of *Staphylococcus albus*, some colonies of *Staphylococcus aureus* and other non-pathogenic organisms.

A start was made with penicillin in the strength of 1,000 units in one millilitre of distilled water. Two drops were instilled into the right conjunctival sac every hour for ten hours, and at the end of that time the conjunctival sac was sterile. I was still uneasy about his nasal infection, especially as he maintained that he could feel something go into his nose when I pressed over his tear sac. Pressure on the tear sac never at any time produced any obvious discharge from the lachrymal puncta. Nevertheless, as the risk was bad, I removed the tear sac. Another

culture four days later produced a growth of 15 colonies of *Staphylococcus aureus*. When the wound had healed another start was made with penicillin, and it was found that material for cultivation taken twelve hours and twenty-four hours after a course of penicillin drops in the eye was on both occasions free of all pathogenic organisms. Strangely enough, on these occasions some non-pathogenic Gram-negative bacilli were present; they had evidently eluded the penicillin.

I decided to operate. For five hours before operation penicillin was dropped into the eye (two drops every hour, the strength being 1,000 units in one millilitre). When the patient was on the operating table, and after cocaine had been instilled into the eye, the conjunctival sac was flooded with the same penicillin solution. The operation was uneventful, except that it took longer than usual owing to the patient's complete inability and apparent unwillingness to look down, in spite of weeks of training. (I mention this because of the added time during which organisms could have entered the eye at the time of the operation.) The cataract was removed without iridectomy, and lens matter was washed out with an anterior chamber irrigator; a Van Lint flap which had been prepared was drawn down over the wound at the end of the operation.

Recovery was uneventful, and no inflammation occurred. When the patient left hospital his visual acuity was $^{6}/_{12}$ with correction, and he could read "J5" with correction. Culture of material from the conjunctiva on his departure from hospital two weeks after operation produced 30 colonies of *Staphylococcus aureus*.

The penicillin used was obtained from the Commonwealth Health Laboratory, Lismore, and the phial was opened and a solution made at the commencement of each treatment. There was never any irritation from the use of the drops. The solution was kept in the refrigerator, and any that remained at the end of twenty-four hours was discarded.

Acknowledgements.

I should like to take this opportunity of thanking Dr. T. R. Pearce and his staff for their interest and help in the examination of the many culture tubes and the identification of the organisms.

A JUNGLE APPENDICECTOMY.

By N. M. KATER,

Flight Lieutenant, Royal Australian Air Force.

THE subject of this report, Captain MacL., is a veterinary surgeon of Edinburgh, who had previously studied medicine for two and a half years. He was captured with the Eighth Division at Singapore, escaped, and was recaptured after five months. He was sent to Sandakan, from where he escaped in June, 1943, and reached Mindanao.

While he was at Resa, on the south coast of Mindanao, he had an attack of appendicitis, which began with the usual abdominal pain and nausea. The pain moved to the right iliac fossa and became localized there; it was of moderate severity. He endured the pain for nine days, and then decided that an appendicectomy was imperative. During this period of nine days he had eaten very little food and his bowels were confined.

Captain MacL. had with him a Filipino doctor, who had graduated at the Manila University just before war broke out, but had never performed an operation of any sort. This doctor agreed after much persuasion to perform the operation under the direction of the patient. The operating theatre was a native house made of *atap*. The instruments consisted of one pair of scissors, one scalpel, one pair of forceps, one curved needle and two spoons bent to form retractors. The suture material consisted of fibre from the *abaca*, which is similar to the banana palm. There was no morphine or anæsthetic agent of any kind. The instruments were boiled in a native pot. The suture material could not be boiled; the surgeon washed his hands.

The patient lay down with his head propped up and held a mirror in such a position as would enable him to direct operations. Routine appendicectomy with invagination of the stump was performed. The appendix was adherent to the peritoneum and had a perforation at the distal end, which was sealed off; no abscess or free pus was present. The operation took four and a half hours; the patient directed operations step by step, and said that he did not feel much pain until the abdomen was being closed. The wound healed well, except for a slight infection in one stitch hole; this quickly cleared. The end result is a neat gridiron scar about one and three-quarter inches in length.

Post-operative treatment was simple. The patient kept quiet, the diet being water for the first day, water and cheese for the second day, and for the third and fourth days *lugow*, which consists of soft boiled rice and chicken broth. On the fifth day the Japanese arrived, and patient and doctor had to "run for it". The wound stood the strain, and convalescence was uneventful; the patient had no residual complications. He has since been in the fighting in Borneo. Incidentally, he fought in the last war with the Seaforth Highlanders.

Acknowledgement.

The Deputy Director-General of Medical Services, Royal Australian Air Force, has given permission for the publication of this report.

Reviews.

THE LATEST HISTORY OF MEDICINE.

THERE are indications from all parts of the world of a greatly increasing popular and academic interest in the romantic story which lies behind the doctor. And this ever-widening interest is all the more apparent as we recall the number of complete histories on the subject which have issued from the press within the last quarter of a century. With hardly any exception each fresh publication had something to commend it either as a useful book of reference or for outstanding merit as a scholarly exposition of the various trends and developments of medical science throughout the ages. It may have been that the author happened to be gifted with the power of artistic literary expression, and we were provided with an intellectual stimulus as well as an entertaining form of relaxation for idle hours.

The latest book to arrive under the title "A History of Medicine" comes from the pen of Dr. David Guthrie, and herein may be found happily combined most of the agreeable characteristics we have just mentioned. Perhaps the author may be forgiven if our readers should gain the impression that the achievements of Scottish medicine have been rather too enthusiastically portrayed; after all, a similar tendency was noticeable throughout the classic treatise of Arturo Castiglione, who was quite naturally over-zealous in his appraisement of the influence of the Italian school.

There are many striking features in the composition of this excellent production which serve to distinguish it from a noble line of predecessors. First and foremost, there are innumerable references to a vast and varied literature bearing on the text; and they appear as footnotes on each page, in a summary at the conclusion of the chapter, and also under classified sections in an appendix at the end of the book. To have compiled such a comprehensive bibliography for the benefit of research students could have been achieved only by dint of much labour and perseverance. On the back of each cover there is a map showing the centres of medical culture and learning in the old world which helps to emphasize the necessity for a knowledge of geography as the essential accompaniment to a better understanding of history. The text is helpfully illustrated by a number of plates printed in purple-tinted sepia, and their main interest lies in the fact that most of the reproductions are seldom found in other books of this kind. For instance, there are several pictures of a castle and hospital used by

[1] "A History of Medicine", by Douglas Guthrie, M.D., F.R.C.S. (Edinburgh), F.R.S.E.; 1945. Edinburgh: Thomas Nelson and Sons Limited. 8¾" × 5¾", pp. 464, with 72 plates. Price: 30s. net.

the Knights of Saint John during their long tenure of over two hundred years on the island of Rhodes. In the latter part of the book interesting information is given about the history of military and naval surgery, the rise of specialism, the development of preventive medicine and medical journalism.

It is like looking for a needle in a haystack when it comes to the search for any errors or inconsistencies in the text, as this work appears to have been compiled with such care and thoroughness. However, one or two points might be singled out for comment. When the plain statement is made that the Medical Papyrus of Thebes "was found in a tomb at Thebes in 1862 by Professor Georg Ebers", the author passes over a good story and gives the incorrect date. Then, one has the feeling that he speaks too ingenuously of the literary achievement of Thomas Vicary, the first Master of the United Company of Barber-Surgeons, who is described as "the author of the first textbook of anatomy to be written in English". Rumour hath it that the late Dr. J. F. Payne proved Vicary's book to be a transcript of a fourteenth century manuscript based on the anatomy of Lanfranc, Guy de Chauliac and Henri de Mondeville, which explains how the contents came to embody so many mediæval ideas, "despite the fact that the author had studied at Padua". The fate of Vicary's 1548 anatomy speaks volumes for the traditional conservatism of earlier times. It was reprinted by his colleagues on the staff of Saint Bartholomew's Hospital in 1577, after his death, held its place as a textbook until the seventeenth century, and was reprinted for the Early English Text Society by the distinguished editor, Frederick Furnival, in 1888.

It is customary to conclude a review of any outstanding book with the pious suggestion that it should "find a place" in every medical library. Unfortunately, many copies fail to reach their proper destination, and librarians will regretfully inform students of the history of medicine that it is out of print and is unobtainable from any source. In these days of rapid advance in modern medical science most books are of little use after a few years, but a book such as the one under review will retain its freshness and value indefinitely. Perhaps some medical librarians will help it to "find a place" on their shelves so that the enlightened student of the future will not be disappointed. After all, Mr. Winston Churchill used the following words (so the preface tells us) in an address to the Royal College of Physicians in March, 1944: "The longer you can look back, the further you can look forward."

A STUDY OF NORMAL YOUNG MEN.

"WHAT PEOPLE ARE" provides a refreshing change from the type of medical book one is accustomed to reading because it approaches sickness from a rational angle.[1] It approaches sickness by attempting to discover what is the normal individual. Not the normal individual of the dissecting room or the physiological laboratory, but the living being as seen in his environment of social and economic problems.

To carry out this work financial assistance was provided by the Grant Foundation. This fund permitted a team consisting of psychiatrist, physician, psychologist, social worker, anthropologist and physiologist to examine each individual from his point of view. Their observations are recorded and correlated. It is also hoped to reexamine the same individual from time to time over the years.

"What People Are" records the initial experiences of this study. It is based on an examination of two hundred and fifty apparently normal young men. It is obvious that this group is not large enough to fulfil the title chosen for this book. It serves rather to discuss the method of examination and offer certain findings on the group chosen for study.

After reference to the difficulty of defining normality, the examination procedure deals first and at great length with the personality types met with in this group. In describing the make-up of the individual the author uses simple terms as "well integrated personality, mood variability, self conscious and introspective, practical organizer, etc.". These words are preferred to the terms of current-day psychology, but they are hardly more satisfactory. The virtue of this section is the emphasis it places on an understanding of the general nature of the individual before investigating his other qualities.

In the subsequent sections, the person's social background, physical type, physiological reactions and medical history are given. Many interesting facts are recorded in these chapters. Social problems, as financial difficulties, were present in 40% of the homes. Of these "normal" individuals, 70% had had their tonsils removed. The wide range of normality is rightly emphasized by illustrating how physiological findings such as the pulse rate and blood sugar vary from individual to individual and in the same individual from time to time.

Although the actual data of this book are small, one is left with the impression that this study will produce valuable results if it proceeds in the way outlined, especially if those conducting it continue to examine the individual with a balanced outlook. When this group of individuals has been watched over a number of years and when other groups of persons have been similarly examined, there should emerge a clearer understanding of what the living person is, as well as the importance of our social structure in affecting the life and health of the individual.

[1] "What People Are: A Study of Normal Young Men", by Clark W. Heath; 1945. Cambridge, Massachusetts: Harvard University Press. 8¼" × 5½", pp. 157. Price: $2.00.

SURGICAL EXPOSURE OF STRUCTURES IN THE LIMBS.

PROFESSOR HENRY, of the University of Egypt, has written a beautifully illustrated and printed book on surgical exposures of limb structures.[1] By extensile exposure he means exposures which may be increased in length at the will of the surgeon.

To discuss this book in detail would be to discuss all of the surgery of the extremities, for anatomy with easy ways of remembrance with reference to the examining hand, provision for operation of exposures of bones, joints, nerves and arteries, and related details are all given and illustrated by beautiful and clear drawings by Zita Stead.

The attitude of the book can be gauged from the headings and from some of the illustrations—"Pitfalls under the Gluteal Lid", "The Half-Sleeve Open", "A Guide to the Gastrocnemius Seam".

In many cases the author has designed new incisions. Such an incision is that designed for exposing the distal part of the humerus in continuity with the antecubital structures. Here the lower part of the author's incision follows the usual position down from the medial side of the insertion of the biceps tendon, but the upper part of the incision goes lateral to the biceps seam instead of passing in the more usual medial position. In regard to this operation he refers to disrupting the loose connecting tissues in the antecubital fossa, tissues which "break and disappear like soap suds".

Professor Henry is to be congratulated on having made applied anatomy for students and post-graduates alike read like a sensational daily newspaper, and the publishers are to be congratulated on what is one of the best illustrated and best printed of recent books.

TREATMENT BY MOVEMENT, MANIPULATION AND MASSAGE.

THE fifth edition of "Physical Treatment by Movement, Manipulation and Massage", by J. B. Mennell, has just been published.[2] For the past twenty-five years the various editions of this work have been almost a standard textbook, and no one has done more than Dr. Mennell to put this part of physical medicine on a sound basis.

Massage is dealt with first, but in modern methods of rehabilitation massage is not now prescribed for some of the conditions mentioned. The modern tendency in the treatment of fractures is to early active movement, which obviates the necessity for much massage. The next section on forced movements is excellent. The illustrations and text describe in detail the best grips for each movement. The author's well-known views on the ilio-tibial band are again emphasized. One notable omission in the discussion of low back pain and sciatica is a slipped intervertebral disk as a causative factor. There are further chapters on neurasthenia and hysteria, neurological and circulatory disorders.

The book covers a wide field, and the fifth edition warrants study by all students of physical medicine.

[1] "Extensile Exposure Applied to Limb Surgery", by Arnold K. Henry, M.B. (Dublin), M.Ch. (Hon., Cairo), F.R.C.S.I.; 1945. Edinburgh: E. and S. Livingstone Limited. 9½" × 6½", pp. 188, with many illustrations. Price: 30s. net.

[2] "Physical Treatment by Movement, Manipulation and Massage", by James B. Mennell, M.A., M.D., B.C.; Fifth Edition; 1945. London: J. and A. Churchill Limited. 8¾" × 5½", pp. 533, with many illustrations, some in colour. Price: 30s.

The Medical Journal of Australia

SATURDAY, MARCH 30, 1946.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

RESEARCH IN MEDICAL HISTORY.

THOUGH the history of medicine has never been really popular among Australian practitioners, the researches into Australian medical history which have been published from time to time by one or other of our small band of historians have been welcomed by a large circle of appreciative readers. But it would appear that during the last few years interest in medical history has waned. This is perhaps natural enough because world history has latterly been made on such an enormous scale that men have been stunned or at least so confused and overwhelmed that they have been hard put to it to keep themselves informed of the rapid changes and to appreciate their significance. Growth and progress in history are not to be confused.

Reinhold Niebuhr has pointed out that history does not solve the basic problems of human existence, but reveals them on progressively new levels. The happenings of the last six years have produced new levels; the human problem is still the same as it was, but the need for its solution is presented with increasing urgency. Progress will depend in large measure on understanding and effort. This reference to the world canvas has been made, not that it may be pursued further, but, since its outlines are so clear, that it may be used to point a moral or state a motif in the much smaller canvas of medicine and its history. The idea of a recent waning of interest in medical history in this country may be more apparent than real, but even if this is so, there is no doubt that those who are prepared to undertake historical research are far too few in number. It must not be thought that research in Australian medical history must always deal with long periods of time or large areas of country. Some day, it is to be hoped, a comprehensive history of Australian medicine will be written, but this should be preceded by the compilation of many historical accounts of happenings in smaller or even isolated Australian communities in different periods of time. Early last year an editorial was published in the *Bulletin of the History of Medicine* dealing with American medical history. Laying stress on the importance of local studies in the medical history of the United States, the writer insisted that no comprehensive and informing history of medicine in the United States could be written unless and until dozens of amateurs in medical history throughout the nation prepared the stories of their own communities, their local institutions and practitioners. This important statement has been elaborated by W. J. Bell, junior, in an article which he wrote while on active service in Italy.[1]

Australia stands in need of historical research in medicine equally with the United States; her need may even be greater, for there is no Australian association analogous to the American Association of the History of Medicine. An active association devoted to the study of a subject may be expected to acquire some new knowledge of that subject, and a society devoted to history should act as a stimulus to attract recruits to the historical quest. It is recruits that are needed. Once recruits have been obtained, they will find, unless they are temperamentally unsuited to the subject, that their interest will be maintained without a great deal of difficulty. What may be regarded as recruiting agencies are rather rare in this country. When an Australasian Medical Congress is held a Section of Medical History and Literature is set up and several papers are read; one or two of the Branches of the British Medical Association have sections of medical history and literature, but latterly little or nothing has been heard of them. At present the only historical provender offered to medical practitioners is to be found in one or two addresses or memorial lectures which are supposed to have an historical background. Interest in history is essential to any effective study of it, but more than interest is required. To be of value the local medical history of, let us say, a small community must do more than tell a story; it should be shown in its relationships with other places and other periods. Bell, in the article that has been mentioned, makes some comments on this subject and also offers suggestions on the planning of research in the local history of medicine. His views are worth the attention of those who may be called medical historians, and as they show how the ground may be covered, they are quite likely to arouse interest in others, even if only to help them to form a judgement of historical articles published in medical journals. Bell's opinion of the work done in local history in the United States is not flattering. With a few exceptions, it has, he thinks, been disappointing. It has been worthless when it has failed to establish facts and fix chronologies. He holds that transactions of county historical societies in every State are filled with the results of investigations "less fertile and meaningful than they might have been had they been made with reference to those general movements to which the local community contributes a part of its experience and by which, in part, it charts its course". These studies begin and end at the county line, and most people will agree with Bell that to study a subject so narrowly is to leave it unenriched. History is indeed more than chronology and more than annals. Researches in medical history should not ignore the "social and intellectual frame within which profes-

[1] *Bulletin of the History of Medicine*, May, 1945.

sional developments have proceeded"—since medicine is always concerned with persons, it cannot be regarded as significant apart from the other interests of men. According to Bell the principle of all researches into local medical history is that it shall be done with constant reference to the known history of their communities and to the accepted generalizations of national history. He is wise enough to admit that the sum of such researches may in the end prove accepted generalizations to be ill-founded. He also admits the importance of unique events. The early settlement of Australia was a unique event; the pioneers in the medical sphere of the new settlement were unique, even as those in the military and other branches of the administration were unique. It is this unique character of all the participants together with the tradition of the Homeland that, as it were, sets the measure for future developments in medicine. Clearly, all these factors have to be considered in any narrative or appraisal of early medicine in this country. What is true of that period is equally true of subsequent developments in different parts of the continent. If a complete outline is sought for a scheme on which inquiry into local medical history can be recorded, it will be found in the scheme suggested by Bell. He divides his scheme into five main parts. The first is "The Community and the Patient". Here are to be considered: geographical conditions; economic conditions, including general conditions, food, communications and housing; social conditions, including general conditions, the position of persons (the work they did, the children they bore, their attitude to children), schools; popular conceptions and prejudices. The second part of the scheme deals with the medical practitioner. This covers the practitioner's origins (social and medical), his education, his role in the community, his contributions to medicine and science generally, his medical ideals, the control of the medical profession (medical associations, state legislation and legal medicine). The third part of the scheme deals with medical knowledge—medical instruction and dissemination of knowledge. The fourth deals with the organization of medical care and the last with related topics such as primitive medicine, pharmacy, military medicine and dentistry. Bell seems to have included every possible aspect and relationship that may come into the historical picture. Any attempt to use such a framework as he has given us does not imply a stereotyped approach or manner of presentation; it is rather an indication of the terrain over which the mind of the recorder should range when he is looking for his facts. New adventurers in the field of local medical history will probably study the lives of individuals and they will, if their choice is well made and their search diligent, be amply rewarded.

Progress in medicine has been made by its "pathfinders", but those who have followed the path in its early and less clear days, or have extended it into trackless places have also aided progress. Man is concerned with his destiny and doctors with that of their calling. Niebuhr has written that wisdom about our destiny is dependent upon a humble recognition of the limits of our knowledge and our power. To increase our power we must add to our knowledge, and this is why the recording of history and its study should not be forgotten in the pursuit of a goal that may after all turn out to be a mirage.

Current Comment.

CEREBRAL HYDATID CYST.

ONE of the results of the cessation of hostilities has been the release for general distribution of several medical journals which had been retained during wartime in the countries of publication. Those numbers of the *Anales de la Facultad de Medicina de Montevideo* which appeared in 1939 have just been received in Australia, and it is pleasing to note that most of the articles have not been rendered out of date by the discoveries of the intervening years. In Numbers 7 to 10 of Volume XXIV there are some interesting studies of cerebral hydatid cyst with elaborate diagnostic detail and descriptions of operational procedure. Apparently rural districts in southern South America still have hydatid disease endemic and supply the clinics of Argentine and Uruguay with abundant material. Alejandro H. Schroeder, Director of the Montevideo Institute of Neurology, draws attention to certain general characteristics of cerebral hydatid infection. Most of his patients, it may be stated, were children.[1] The great majority of the cysts were found in the occipito-temporal region; only rarely was the frontal region or the lower Rolandic area the site. The author expresses his belief that possibly some minor detail of cranial circulation brings this about. Air encephalography has been useful in the examination; one feature Schroeder regards as having special diagnostic value, namely, that one ventricle is displaced laterally beyond the sagittal plane, is enlarged vertically, but is flattened laterally, so that it appears as an obscure line. Especially noticeable is the fact that large cerebral cysts can exist without the least departure from normality both of mind and body. Of course, as nearly all his cases occurred in children, the cranial sutures were able to open and to allow considerable expansion of the brain without indications of hypertension. From one cyst 600 millilitres of fluid were withdrawn, and this the author puts forward as a possible record. The syndrome which led to the patients being brought to hospital was the old trinity of headache, vomiting and optic neuritis. As stated, most of the sites were occipito-temporal, and here hemianopsia was also present. The operative procedure was to make, under local anæsthesia, a linear vertical incision after the method of Cushing in the temporal region, the trephine opening was enlarged with bone forceps sufficiently to allow access to the cyst which was shelled out, and the cavity was washed several times with ether. Some post-operative disturbances were noted in all cases, but the majority of the patients made a good recovery. The article is illustrated by admirable encephalograms.

In the same number of the *Anales* two cases of cerebral hydatid cyst with infantilism are described by Schroeder and F. Ramírez, Director of the Neurological Clinic.[2] A boy of fifteen, in addition to the signs and symptoms of cerebral cyst, had the general appearance of a child of eight; the second case was that of a boy of fourteen who also presented the classic picture of pituitary infantilism. The question before the authors was whether the hydatid growth was the cause of the infantilism through interference with the hypothalamus or hypophysis or whether it had been superposed upon an existing subpituitarism. Very detailed examination of the facts has led the authors to the view that the pituitary insufficiency was actually the outcome of the growing cyst. One boy survived the operation; the other succumbed.

In another article[3] Schroeder and Enrique Torrents announce the discovery that electro-encephalography can be of signal service in the differential diagnosis of cerebral

[1] Alejandro H. Schroeder: *"Tres Nuevos Casos de Quiste Hidático Cerebral Operados con Nuestra Téchnica"*, *Anales de la Facultad de Medicina de Montevideo*, Volume XXIV, page 681, 1939.

[2] Alejandro H. Schroeder and F. Ramírez: *"Dos Casos de Quiste Hidático Cerebral con Infantilismo"*, *ibidem*, page 649.

[3] Alejandro H. Schroeder and Enrique Torrents: *"Valor Localizador de le Electro-encefalografía Comparativmante con la Ventriculografía en el Quiste Hidático Cerebral"*, *ibidem*, page 711.

hydatid cyst. When ordinary tumours encroach on cerebral structure the region immediately surrounding the neoplasm gives indication of irritation as evidenced by irregular discharges of relatively high voltage (100 to 200 microvolts) and with a frequency of 60 to 80 cycles a second. Such electric excitement is never observed with hydatid cysts.

DROPLET SPRAY INFECTION AND RESPIRATORY ACTIVITY.

IN the issue of February 14, 1942, attention was drawn in these pages to the subject of sneezing and droplet infection and to some research that had been carried out by R. B. Bourdillon and O. M. Lidwell. These workers used flash photography to study the projection of droplet particles. They showed that the size of the droplets varied with the different types of sneeze. A fine spray was caused when teeth or lips were tightly closed and expiratory pressure was high; relatively few large drops were produced when jaws and lips were open and expiration was moderated. Bourdillon and Lidwell made tests with culture plates. Among other findings was the observation that a large number of bacteria-carrying particles from a sneeze were small enough to remain suspended for fifteen minutes before falling onto the culture plates. This question has been investigated again by J. P. Duguid, who writes from the department of bacteriology of the University of Edinburgh.[1]

Duguid's paper bears the title: "The Numbers and Sites of Origin of the Droplets Expelled during Expiratory Activities." He points out that the fact that the production by expiratory activities of droplets which are small enough to remain air-borne as droplet nuclei is evidence that infection may be spread by this means. To this he adds a "but": "It has been found . . . that aerial infection is much more limited than is suggested by the purely physical studies of droplet-spray, and that pathogenic organisms carried in the respiratory tract are not expelled as readily, nor in as great numbers, as commensal organisms from a normal mouth or *B. prodigiosus* from an artificially infected mouth." This is apparently because pathogenic organisms tend to be confined to certain circumscribed localities, especially to the tonsil and the pharynx, and are seldom present at the front of the mouth, the site from which most droplets originate. In these circumstances it is necessary to know where the droplets may have their origin and how many may come from the different sites. In determining the sites of origin of the organisms, Duguid has paid attention to the method of atomization. Atomization occurs when the breath is forced through some part of the respiratory tract which has been greatly narrowed. The commonest site of atomization is the front of the mouth; it may also occur in the throat, in the glottis, in a bronchus, in the nasal cavity or in the anterior nares.

Duguid's investigations were concerned with the estimation of the number of droplets expelled during normal breathing, strong nasal expiration, laughing, speaking, coughing and sneezing. He counted colonies produced on culture plates which had been exposed directly to droplet spray; he counted droplet stain-marks on slides exposed directly to droplet spray; he counted colonies on culture plates exposed in the Bourdillon slit sampler and he counted all microscopically visible droplet nuclei found on oiled slides exposed in the slit sampler, the nuclei being coloured by dye previously taken into the mouth. By these methods droplets of various sizes were counted. Normal breathing for a five-minute period sometimes did not produce any droplets and sometimes produced a few. The practical significance of the "few" droplets expelled is shown by a remark of Duguid's, that if only two droplets are expelled every five minutes, the daily total will be 500, which "is not negligible". The "few" droplets which were expelled were found to originate from the nose. A single strong nasal expiration produced from a few to a few hundred droplets; some were small enough to form droplet nuclei. Laughing for a period of one minute sometimes did not produce any droplets and sometimes produced a few; these originated from the faucial region. Counting softly from "one" to "a hundred" produced from a few to a few dozen droplets; counting loudly from "one" to "a hundred" produced from a few dozen to a few hundred; these originated from the floor of the mouth and most were small enough to form droplet nuclei. Enunciating loudly one hundred "K's" sometimes did not produce any droplets and sometimes produced a few dozen to a few hundred; many of the droplets originated from the faucial region, and some of these were small enough to form droplet nuclei. A single cough with the mouth well open sometimes produced no droplets and sometimes from a few dozen to a few hundred. Many of these droplets came from the faucial region and a few were small enough to form droplet nuclei. A single cough with the mouth initially closed produced a few hundred to many thousand droplets; these came from the front of the mouth and most were small enough to form droplet nuclei. A single natural sneeze produced a few hundred thousand to a few million droplets; these seemed to come from the front of the mouth and most were small enough to form droplet nuclei. In most sneezes between a few and a few thousand droplets were found to originate both from the nose and from the faucial region; some were small enough to form droplet nuclei.

This work is full of interest. The atomization is clearly of greatest importance, for this is most likely to produce droplet nuclei which remain suspended in the air for varying lengths of time. From the point of view of prophylaxis it does not help much to know that droplets from the front of the mouth are less likely to contain pathogenic organisms. It is easy to imagine that the front of the mouth of a person with a "heavy" cold will also be heavy with pathogenic organisms. Also a man with a cold cannot be selective in his expulsion of droplets from the front of his mouth or from his fauces. The prophylactic use of a large and frequently changed handkerchief is still indispensable, and even when we talk to an infective person it is safe to keep our distance from him.

[1] *Edinburgh Medical Journal*, November, 1945.

THE BRAIN OF DR. ROBERT LEY.

WHEN Dr. Robert Ley, Nazi leader, hanged himself, his brain was sent to the United States for examination. We read in "News Notes" from the office of the Surgeon-General, Washington, dated January 31, 1946, that study of the brain reveals "a long standing degenerative process of the frontal lobes". The degeneration was held to be sufficient to account for the unusual behaviour of the former German leader. There was considerable thickening of the "brain covering over the frontal lobes on both sides". The underlying convolutions as well as some of the blood vessels were hidden from view by this thickening. Slight atrophy was present and microscopic examination disclosed chronic encephalopathy. The condition was too symmetrical to be due to trauma and there was no indication of meningitis. The change was like that sometimes caused by alcohol, but there was no proof that alcohol was a causative factor. It is to be hoped that a full report will be published in a neurological journal.

INDEX TO "THE MEDICAL JOURNAL OF AUSTRALIA".

THE index to THE MEDICAL JOURNAL OF AUSTRALIA for the half-year ended December 30, 1945, has been published and will be sent to those who wish to have a copy. It will not be necessary for those who received a copy of the previous half-year's index to ask for another on this occasion. Others should apply to the Manager of the journal at The Printing House, Seamer Street, Glebe, New South Wales.

Abstracts from Medical Literature.

RADIOLOGY.

The Early Radiological Diagnosis of Gaucher's Disease.

WILLIAM TENNENT (*British Journal of Radiology*, November, 1945) states that there are two distinct forms of Gaucher's disease which may be referred to as the visceral form and the osseous form. The distinguishing feature is the site of the lipoid deposits. In the visceral form it is the reticulum cells of the spleen, liver and lymph nodes which absorb the major portion of the lipoid, and the reticulum cells of the bone marrow are involved only to a lesser degree. This is the type associated with a giant spleen, few blood changes and little pigmentation, while the bone changes detectable by X rays may be entirely limited to a characteristic widening of the lower ends of the femora with cortical thinning. In the osseous type the reticulum cells of the bone marrow bear the brunt of the disease, and the spleen, while noticeably enlarged, seldom attains the giant proportions seen in the visceral type. The blood in the osseous form tends to show a greater degree of anæmia, and the hæmosiderosis may be marked. The bone changes are, as a rule, most marked in the femur and the spine. On a casual inspection the films from an early case of Gaucher's disease might be passed over without comment, but if comparison is made with those from a normal child of the same age certain highly significant diagnostic points may be elicited. First there is a well-marked general osteoporosis, which increases in degree from above downwards. Secondly there is expansion of the lower ends of the bones, and this expansion takes a typical form. It is mainly manifested on the medial aspects of the femora, and while there is a true overall increase in the breadth, the lateral wall takes little share in this during the earliest stage of the disease. If the medial aspect of the normal femur is observed it will invariably be seen to be markedly concave with a well-defined inward curve and a slight upturning at the epiphyseal line. In Gaucher's disease, however, the first bone change is a loss of this medial femoral concavity, which gradually fills out until it becomes a straight line and finally a convexity. In established cases of several years' duration, the expanded femora may ultimately assume the shape of a pair of Rhenish wine bottles, with the subtrochanteric region representing the narrow neck. Thirdly there are cortical thinning and small medullary areas of erosion of the trabeculæ. The cortical thinning starts in the mid-shaft and again is largely confined to the medial wall. Cases have been reported with vacuolation of the cortex and pseudocystic changes in the medulla progressing to actual fracture, but these signs play no part in the early diagnosis of the condition. Established cases may bear a superficial resemblance to *osteitis fibrosa cystica*, on account of the marked osteoporosis and pseudo-cyst formation, but in the early case the chief danger is that it may be mistaken for osteomyelitis and the bone needlessly drained. Subjects of Gaucher's disease are prone to intercurrent infections, and the combination of pyrexia with small medullary areas of trabecular erosion in a child or young adult may give rise to serious diagnostic difficulties. If, however, the associated widening of the shaft is but noted, and in particular, if the straightening out of the normal medial femoral concavity is seen, then the true nature of the lesion is at once obvious.

Atypical Œsophageal Displacement with Left Atrial Dilatation.

BERNARD S. EPSTEIN (*American Journal of Roentgenology*, September, 1945) states that the displacement of the œsophagus usually associated with left atrial dilatation is posteriorly and to the right. In six patients suffering from advanced left atrial dilatation associated with rheumatic mitral and aortic valve disease the author found that œsophageal displacement was toward the left and posteriorly, closely following the transverse thoracic and descending thoracic aorta. It is suggested that this uncommon atypical position of the œsophagus is due to aortic-œsophageal adhesions, since rheumatic aortitis, when sufficiently extensive, may result in the same aortic-œsophageal adhesions as occur with hypertensive arteriosclerotic or syphilitic aortitis. If these adhesions were sufficiently strong before left atrial enlargement took place, it might be anticipated that subsequent dilatation of that chamber would not cause the œsophagus to deviate in the usual manner.

The Clinical Significance of Deformity of the Caecum in Amœbiasis.

ROSS GOLDEN AND PAUL DUCHARME (*Radiology*, December, 1945) state that the primary lesion of amœbiasis is an ulcer which involves the mucosa, which may extend into the submucosa, but which does not penetrate the *tunica muscularis*. Amœbic lesions may be present throughout the entire large intestine. They are likely to be most numerous or may be present only in the caecum and ascending colon and in the sigmoid and rectum. The ileum is rarely involved. In the authors' experience the caecal deformity has varied considerably. In some cases it was slight and amounted to narrowing of the tip. In a few the caecum was so shrunken that its shadow measured only 2·0 or 3·0 centimetres in diameter. In the great majority the outline was smooth. Much less frequently the caecum was irregular in outline and narrow without much shortening. The size and outline of the caecum often changed a little from time to time; this was particularly noticeable when the deformity was relatively slight. In some instances pressure on the caecum appeared to cause an increase in the deformity. Localized tenderness was usually elicited. In none of the cases was the terminal portion of the ileum narrowed or intrinsically deformed. Abnormality of the caecum demonstrable by radiological methods is not present in nearly two-thirds of the cases of amœbiasis, although in the great majority of them lesions in the caecum are undoubtedly present. However, in over one-third of the cases, caecal deformity is present. The reason caecal deformity appears in one case and not in another is not clear. Inasmuch as caecal deformity is present more than five times as frequently in patients with diarrhœa or other intestinal symptoms as in those with neither, it seems probable that the severity of the infection and, therefore, the number of lesions may play a part. No observations are available to indicate how soon after infection caecal deformity may appear. The fact that the small caecum relaxes under treatment indicates that the deformity is due in part at least to spasm. The amœbic lesions in early stages are confined to the mucous membrane. Stimulation of the mucosa alone by the lesions would probably not tend to cause spasm. It seems possible, therefore, that after the ulcers penetrate into the submucosa and a secondary infection occurs, then spastic contraction of the caecum may be caused by direct irritation of the muscularis.

The Radiographic Appearance of Lobar and Segmental Collapse of the Lung.

LAURENCE L. ROBBINS AND CLAYTON H. HALE (*Radiology*, October, 1945) state that collapse of a single lobe of the lung is most frequently misinterpreted when it occurs in one of the upper lobes. It is confused with a localized area of consolidation, a mediastinal tumour, or an aortic aneurysm, and in some instances, especially in the presence of a long-standing fibrotic process without apparent atelectasis, it may be completely overlooked. Its occurrence is relatively infrequent as compared with collapse in the lower lobes or the middle lobe, but it is common enough to warrant greater emphasis than has been given it in the literature. Demonstration on the lateral skiagram that a major septum is no longer in its normal position may be the first evidence suggestive of decrease in the size of an upper lobe. The septum will appear to lie farther anteriorly, and its superior portion will extend higher in the chest. At about the time the lobe has diminished to approximately two-thirds of its normal size, it may be noted that the supposedly normal pulmonary markings appear to be somewhat more closely grouped than usual. As the collapse increases, the lung markings seem to be actually crowded together, and the lobe is seen to occupy a constantly diminishing space. At this point the increased number of markings per unit area will usually make the now small lobe cast a definite shadow of increased density in contrast with the adjacent uninvolved lung. The latter will now be emphysematous, since it necessarily has had to increase in size to fill the space formerly occupied by the collapsed lobe which, as it became smaller, continued to move further anteriorly and medially. A collapsed upper lobe may in some cases become so small and move so far anteriorly and medially that in the postero-anterior projection the shadow of increased density will blend with that of the upper mediastinum and the combined shadow will merely suggest mediastinal widening. In the lateral view, the shadow may become assimilated with that of the upper anterior portion of the chest

wall and be readily overlooked. The area between the ascending and transverse portions of the aorta and the chest wall, which is normally of increased radiability, now becomes obliterated and approaches the density of the soft tissues. As in collapse of a lower lobe, an upper lobe can be decreased in size and no great amount of atelectasis be visible. When this occurs the skiagram is frequently interpreted as showing a minimal tuberculous lesion because the area of atelectasis is small and the decrease in the size of the lobe is not appreciated. Also, if the collapse is due to a chronic condition in which secondary fibrosis occurs, as in tuberculosis or bronchiectasis, the process may remain stationary for many years.

PHYSICAL THERAPY.

Röntgen Therapy of Bladder Carcinomata.

FRANZ BUSCHKE AND SIMEON T. CANTRIL (*Surgery, Gynecology and Obstetrics*, January, 1946) present the results of a study of external Röntgen therapy in carcinoma of the bladder. Sixty-eight patients with advanced carcinoma of the bladder were treated between 1934 and 1940. At the time when the paper was written, ten patients were clinically well and without cystoscopic evidence of disease; seven of these were well and had remained well for more than four years. The kilovoltage used was 800. The authors point out that the type of therapy used is a formidable procedure, and only patients in good general condition will support it. Adequate bladder drainage and capacity and absence of infection are prerequisites. Previous suprapubic operation constitutes an additional hazard to intense irradiation. The method is not suitable for use as a palliative; patients with cancers inoperable because of extravesicular extension have not been benefited. The most suitable patients for radical Röntgen therapy are those with extensive papillary carcinomata in which no infiltration can be found. If papillary carcinomata recur after repeated fulguration, or if the surgeon thinks that a certain type of carcinoma will probably recur after fulguration, Röntgen therapy is indicated without further delay, if it is considered at all. In other words, if Röntgen therapy is chosen, it should not be requested as a last resort when the conditions for success have been lessened by infiltration of the tumour, poor general condition of the patient or associated infection. In spite of some contrary evidence, the authors believe that control of the growth by Röntgen therapy becomes practically impossible when the bladder muscle is invaded; they have been unable to determine with certainty whether those patients who benefited had an infiltration of the bladder mucosa only, without true infiltration of the bladder wall. Carcinomata that have progressed beyond the bladder wall and become palpable by rectal examination they believe to be beyond cure. It has to be considered that occasionally an infiltration may be apparent which may be due to accompanying inflammatory infiltration rather than true carcinomatous extension, and also that the histological examination of the removed specimen may give misleading results—the biopsy obtained from the periphery of the growth may not show the deeper infiltrative portions of the tumour. An adequate loop resection biopsy may give more reliable information. The authors believe that a small carcinoma of primarily infiltrating type is better handled by surgical excision if possible. If the lesion is so placed that complete bladder resection is the only possible surgical procedure, interstitial irradiation, preferably in the form of implantation of removable radium needles, probably gives better results than Röntgen therapy, provided the actual diameter of the tumour is not more than 3·5 centimetres.

Cervical Carcinoma Treated by Interstitial Radium Implantation.

G. W. WATERMAN AND R. DILEONE (*American Journal of Obstetrics and Gynecology*, November, 1945) present a further report on the treatment of carcinoma of the cervix by the interstitial implantation of radium needles at the Rhode Island Hospital. The series is made up of chronologically consecutive cases occurring at the hospital or in the private practice of the authors. Of the cases, in 309 (1926 through 1933) the five-year survival rates have already been published; the ten-year survival rates are now given. A new series of 198 cases is added; these cases occurred at the hospital from 1934 through 1938. Of the 309 original patients, 100 survived for five years and 69 survived for ten years; five deaths before the end of the five-year period and eleven deaths between the fifth and tenth years were not due to cancer. In the second series of 198 cases, there were 66 five-year survivals; 21 of these patients were not treated at all because the growth was too advanced, and one patient treated elsewhere survived for five years. Of the total of 507 patients, 49 were not treated; of the remaining 458 patients, 165 survived for five years. In 1933 the authors began to use deep X-ray therapy as part of their planned treatment in a few cases. During 1934 and 1935, X-ray therapy was used extensively, and they were bad years; it soon became evident that severe reactions were occurring. Better spacing of the X-ray and radium treatment seemed to correct the fault. During the years from 1936 to 1938, 127 cases occurred and 109 of these patients were treated; 49 survived for five years. Thus in the first series of 309 cases the relative five-year survival rate was 35·7%, in the second series of 198 cases the relative five-year survival rate was 36·7%, and in the series of 127 cases from 1936 to 1938 the relative five-year survival rate was 44·9%. Investigating the five-year survival rates according to age groups, the authors found that among patients aged forty-five years and under the rate was 38·0%, and among patients aged forty-six years and over, the rate was 29·5%. Discussing dosage used, the authors point out that as the higher dosage levels were attained, more X-ray therapy was combined with radium therapy. They believe, from a study of their results, that they have probably over-treated some of the larger lesions, and that the employment of fewer needles or of needles more widely spaced may improve their results, particularly when X-ray therapy is combined with radium. Over-treatment can spoil good results as easily as under-treatment. Among complications of treatment were the following: (i) fistulæ; (ii) vesical hæmorrhage, due to trophic ulcer or telangiectatic vessels; (iii) late pyelonephritis; (iv) bladder ulcer and infection, with or without resultant pyonephrosis; (v) hydronephrosis due to renal stricture. The authors hope to improve their results by basing their future treatment on lessons learnt from these series of cases.

X-Ray Therapy in Advanced Rheumatoid Arthritis.

J. BORAK AND H. K. TAYLOR (*Radiology*, October, 1945) make a preliminary report on the effects of X-ray therapy in advanced rheumatoid arthritis. They divide rheumatoid arthritis into three main stages; mobility is the most valuable criterion in the differentiation of these stages. In the first stage pain and soft tissue swelling restrict the active mobility of the joint, though passively it can be moved through its full range. In the second stage mobility is restricted both actively and passively to a varying degree. In the third stage no motion, either active or passive, is possible. The X-ray appearances vary in the three stages. In the first stage the joint space is of normal width; effusion may be present or swelling of the periarticular tissues and some decalcification of bones. In the second stage there is some narrowing of the joint space and sometimes destruction of the subchondral adjacent bone has taken place. In the third stage the joint space may be obliterated with an osseous ankylosis or a thinning of the articular cartilage associated with a fibrous ankylosis. In the first stage the pathological changes are characterized by œdema, chronic inflammation and hyperplasia of the synovial membrane. The second is marked by the formation of granulomatous tissue, and the third by destruction of cartilage and its replacement either by fibrotic strands or osteoid tissue. The authors state that different doses of radiation are required to influence the different types of pathological tissues. They have treated 66 patients suffering from advanced rheumatoid arthritis, and the doses given were those found to be effective with hyperplasia and granulomatous tissue, between 800*r* and 1,600*r*. The dose as a rule was administered within a period of three weeks. This was in the authors' experience the shortest period in which the treatment could be given to a joint without damage to the tissues. Ten of the patients were selected for critical study, and in this group a total of 85 joint areas was involved. In most cases good results were obtained. The authors point out that since rheumatoid arthritis is a polyarthritic condition, agents which affect all the joints involved are superior to X rays. X-ray therapy, therefore, should never be applied as a primary method. It is given for the relief of local symptoms, to alleviate pain and to increase mobility. It should be employed only after the failure of the usually accepted methods of treatment.

British Medical Association News.

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioners have been released from full-time duty with His Majesty's Forces and have resumed, or will resume, civil practice as from the dates mentioned:

Dr. J. C. Loxton, 135, Macquarie Street, Sydney (January 1, 1946).
Dr. A. J. Flynn, 135, Macquarie Street, Sydney (April 1, 1946).
Dr. F. W. Niesche, 185, Macquarie Street, Sydney (March 1, 1946).
Dr. A. D. A. Mayes, Sandgate Road, Clayfield, Brisbane (February 25, 1946).
Dr. P. H. McIndoe, Wickham House, Wickham Terrace, Brisbane (February, 1946).
Dr. Robert Grant, Mackay, Queensland (February 18, 1946).
Dr. T. Hamilton, Bank Chambers, 17, Bolton Street, Newcastle, New South Wales (February 25, 1946).
Dr. K. G. Lawrance, Alstonville, New South Wales (March 18, 1946).
Dr. O. H. Schneider, 454, Sydney Road, Seaforth, New South Wales (March 25, 1946).
Dr. A. B. Sullivan, C.B.A. Buildings, Hunter Street, Newcastle (March 11, 1946).
Dr. Brooke Moore, 142, William Street, Bathurst March 11, 1946).
Dr. D. W. H. Arnott, 141, Macquarie Street, Sydney (February 25, 1946).

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held on October 10, 1945, at the Children's Hospital, Carlton, Melbourne, DR. H. DOUGLAS STEPHENS, the Acting President, in the chair.

Multiple Congenital Deformities.

DR. H. DOUGLAS STEPHENS showed a female child, aged three months, with multiple congenital deformities including bilateral hare-lip, cleft palate, bilateral webbed legs of the "flying fox" type and webbed toes. The mother's sister had been born with a hare-lip and hemiplegia and had survived for only six days. There were deformities in other members of the family. The mother had suffered no miscarriages, and three older children were normal. The patient was a full-time baby, and labour had been normal. Breast milk was not available, and the baby had been fed on a milk mixture. On examination of the child, as well as the deformities already noted above, slight malformation of the lobe of the left ear was present and the vulva was malformed. No murmurs were audible over the precordium. X-ray examination of the lower limbs and the jaw revealed no bony abnormality.

Bowel Resection for Intussusception.

Dr. Stephens's next patient was a male child, aged four and a half months, on whom he had successfully performed resection of the ileum, caecum and ascending colon for intussusception.

DR. J. G. WHITAKER congratulated Dr. Stephens on an excellent result. Dr. Whitaker said that the late Dr. R. M. Downes had set the standard for these cases in 1924, when he performed the first of three successful resections. Dr. Whitaker himself had had no success with these cases.

Dr. Stephens, in reply, said that Dr. Downes employed extroversion in his cases. This was the only case in which he himself had achieved success with so young a patient.

Congenital Cystic Disease of the Kidneys.

DR. W. W. MCLAREN showed the kidneys of a baby who died at the age of four weeks from congenital cystic disease of the kidneys. The baby had been referred to the Children's Hospital from the Women's Hospital, where it had been noticed that the urinary output was far below normal and that the baby was not thriving. Before death the kidneys could be felt as large, rounded masses in both loins. Some œdema of the eyelids and the lower extremities had occurred.

Congenital Cystic Disease of the Lung.

Dr. McLaren's second patient was a male child, aged nine months, who had been unusually fretful during early life, difficult to feed and subject to recurrent attacks of diarrhœa. Two months prior to his admission to the Children's Hospital he had been admitted to the Colac Hospital under the care of Dr. K. McK. Doig, suffering from left-sided pneumonia. This had responded to penicillin, but a cough had persisted since. During the two weeks before the child's admission to the Children's Hospital, the cough had become paroxysmal and worse at night. Dispnœa had been present between spasms of coughing. Dr. Colin Macdonald made an X-ray examination of the chest on July 31, 1945; he reported that the heart was much displaced to the right, and an area of abnormality occupied approximately the upper three-quarters of the left lung field. This abnormal area, which appeared to lie wholly in the upper lobe, had a well-defined lower margin; what could be seen of the lower lobe suggested that it was partly compressed. The loss of translucency in the involved upper lobe was not homogeneous; the apex was not consolidated, and below this the appearance was honey-combed, suggesting a cystic condition or cavitation. Dr. Macdonald considered that the condition was probably congenital cystic disease of the upper lobe of the left lung, with superadded pneumonia; the appearances were against hydatid disease or caseating pneumonia (for example, tuberculosis). A further X-ray examination was made on August 7. The abnormal area in the left lung had increased since the previous film, with further displacement to the right of the heart and mediastinum. In the lateral view was seen a large, lobulated mass occupying the posterior third of the left hemithorax, the extreme apex and base of the lung being uninvolved. In these films the loss of translucency was virtually homogeneous. Dr. Macdonald thought that on the appearances, the X-ray differential diagnosis would include a teratoma extending into the left hemithorax from the mediastinum.

The child was admitted to the Children's Hospital on September 4. On examination, the heart was found to be displaced to the right. The heart sounds were regular and clear. Slightly diminished breath sounds were heard in the left upper quadrant of the chest posteriorly, but there were no adventitiæ. The Mantoux and Casoni tests both gave negative results. A blood examination on September 5 gave the following results: the hæmoglobin value was 70%, the leucocytes numbered 24,000 per cubic millimetre, and the differential leucocyte count showed that 51% were polymorphonuclear cells, 46% were lymphocytes, 2% were monocytes, and 1% were eosinophile cells. He had a paroxysmal cough suggestive of pertussis, but from a cough plate contaminants only were grown on culture. He had an elevated temperature and was treated with sulphamerazine, four tablets being given at once and two twice a day; to this treatment he responded. An X-ray examination on September 6 revealed virtually no change in the appearances since the film taken on July 31. The heart and mediastinum were displaced grossly to the right by a lobulated mass presenting a honey-combed or cystic structure, which encroached on the middle half of the left lung field. The mass appeared to be arising from the posterior part of the mediastinum, and there was nothing to suggest that it was a thymoma. A further film taken on October 1 revealed resolution of the opacity seen previously over the upper two-thirds of the left lung. An extensive cystic condition was present at the site of the previous area of consolidation. The heart and mediastinum remained displaced to the right. There appeared to be no diaphragmatic hernia, and the appearances suggested a condition of congenital cystic disease of the lung, which when the first films were taken was the site of pneumonitis. The child had survived an attack of measles and had been referred to Dr. Whitaker for an opinion.

DR. J. G. WHITAKER said that he had been asked two weeks previously by Dr. Henry Sinn to examine the patient. The condition appeared to be mediastinal teratoma until a more recent X-ray film was taken; the appearances in this were suggestive of cystic lung. Dr. Whitaker was not prepared to take any active measures until he had had a consultation with Dr. Colin Macdonald.

DR. HENRY SINN said that he was vitally concerned in this case, as he had examined the child early in the illness and had secured his admission to hospital. When the child was first examined, although he had pertussis, signs of some pathological process at the upper lobe of the left lung were

found. X-ray examination of the chest at this time revealed a more or less homogeneous dense shadow over the upper lobe of the left lung, apparently extending out from the mediastinum and displacing the mediastinal structures to the right. Previous films had suggested a cystic element at the upper part of this shadow, and since at this stage there were no clinical signs of pneumonia, the diagnosis appeared to rest between dermoid cyst or teratoma and hydatid cyst of the lung. The child was young for hydatid disease, and the Casoni test failed to produce a reaction. The baby's condition gradually improved, and the latest X-ray film cast an entirely new light on the underlying disease, though Dr. Macdonald in his wisdom had given an excellent judgement from the first film taken. As had been observed, the homogeneous area of density no longer existed, and now the upper lobe of the left lung was replaced by a number of translucent cystic spaces. Dr. Sinn said there could be no question that the condition was one of congenital cystic disease of the lung. The displacement of the mediastinal structures could be explained by a valvular obstruction which allowed air to enter the cystic spaces but hindered its expulsion, and so created an area of positive pressure sufficient to displace the mediastinal structures.

DR. RUSSELL HOWARD thought that there was one point against the diagnosis of congenital cystic disease of the lung, and that was the gross displacement of the mediastinal structures. The lesion might possibly be a mediastinal cyst, enterogenous or bronchogenic in origin. A bronchogram might help to clarify the matter.

DR. KEITH HALLAM said that he agreed with the diagnosis of cystic disease of the lung. It was rather baffling to work out what had occurred in the month previous to the consolidation. It appeared to him that the grossly cystic upper lobe of the left lung had herniated through the upper anterior mediastinal space and had caused the heart to be dislocated and rotated towards the right. This could be an explanation for the anatomical displacement seen in the X-ray film.

DR. LESLIE WAIT said that he agreed with the diagnosis of cystic lung disease. He thought the child should be submitted to operation. In polycystic disease of the lung, an X-ray film taken with the patient in the vertical position would show a fluid level.

Generalized Hypotonia: A Case for Diagnosis.

DR. H. L. STOKES presented a female child, aged two years and six months, suffering from generalized hypotonia. She was a first and only child. The mother had had a hæmorrhagic vaginal discharge two weeks before the baby was born and had also experienced a few uterine pains seven days before the child's birth. However, the baby was born at full time and the birth weight was seven pounds fourteen ounces. She was breast fed for eight months and progressed well to weigh 24 pounds at eleven months. She sat up without support at six months, stood up with support at eight months, and walked at twelve months. If she fell she always tried to pull herself up by a chair or other object. She never walked as well as a normal child, and was inclined to shuffle and walk with her back bent and stomach out. At twenty months the difficulty in walking increased. She ceased to walk at two years. Now she could not sit up for long and soon grew tired. She had always been a bright, happy child, without photophobia. She now weighed two stone. She had never had cod liver oil emulsion or "Adexolin". Her diet contained very few oranges. Pronounced hypotonia was present, especially affecting the lower limbs. She tended to "slip through the hands". She appeared intelligent and could talk fairly satisfactorily. The head measurements were normal. Dr. Stokes said that he regarded the condition as a muscular dystrophy, possibly of the pseudohypertrophic type, though the onset was early and the sex was unusual. *Amyotoma congenita* appearing early was also a possibility. The progress was too slow for generalized poliomyelitis. He could not think of any possible cause of peripheral neuritis. There had been no rash suggestive of pink disease.

DR. W. W. MCLAREN said that he agreed with Dr. Stokes's diagnosis. The absence of irritability was important. The condition of the calf muscles was suggestive of pseudohypertrophic muscular dystrophy.

DR. HENRY SINN said that Dr. Stokes had asked for an opinion on the ætiology, but had exhausted all the possibilities and left little to say. However, he did not agree with the conclusion that Dr. Stokes had reached. The sex, the absence of the familial factor, the early onset and the lack of hypertrophy in the muscles were exclusive of, rather than diagnostic of, pseudohypertrophic muscular paralysis. Dr. Sinn said that he preferred to take an optimistic view of the condition and would classify it as polyneuritis or as peripheral neuritis of uncertain ætiology. The absence of a causative factor was by no means exclusive of this disease, and cases such as these, as well as cases of atypical pink disease which resembled it closely, frequently emanated from country districts. Dr. Sinn said that his experience with two other children from a country district in New South Wales encouraged him to express this view. These two children were brother and sister and presented the most extreme degre of hypotonia with which he had ever been confronted. The older child lost the ability to walk, and the younger child did not acquire it at the usual age. Although their progress was painfully slow and was punctuated by recurrent attacks of respiratory infection, recovery was ultimately complete after about six months. Vitamin *B* therapy was the treatment used, and he suggested that this be given a trial in the present case before the gloomy diagnosis of muscular dystrophy was attached to the patient.

DR. KATE CAMPBELL thought that the disorder might be one of the atypical degenerative conditions of the nervous system seen in young children similar to Tay-Sachs disease. Examination of the fundus might prove informative. She did not favour the diagnosis of pink disease, and thought that the patient's progress should be carefully watched.

DR. ALFRED DERHAM agreed with the opinion expressed by Dr. McLaren. However, in case Dr. Sinn might be right, he suggested that the child be given a trial with large doses of vitamin *B*.

DR. LESLIE WAIT said that he thought the case was one of pseudohypertrophic muscular dystrophy. The child presented the characteristic rubbery feel of the calf muscles and slipped through the hands when lifted.

Dr. Stokes, in reply, said that he would push vitamin *B* therapy. He was impressed by the steady progression downhill. He proposed to examine the long bones radiologically to exclude lead paralysis and to carry out a Wassermann test. He would show the patient again in three months.

(To be continued.)

Obituary.

DOUGLAS CLELLAND PIGDON.

DOUGLAS CLELLAND PIGDON was born in Melbourne in 1891. His father was Thomas Miers Pigdon, and his mother Elizabeth McGregor, of Hobart. He began his education at Carlton College, where he was *dux* of the school in 1906. The next three years he spent at the Church of England Grammar School, Melbourne, proceeding to the University of Melbourne, where he graduated M.B., B.S., in 1914. On the outbreak of war he enlisted on August 5, 1914, in the Fourteenth Battalion, Australian Imperial Force, as a combatant officer, but, under pressure from the Medical Directorate, transferred to the Australian Army Medical Corps and served in France as medical officer to a field artillery brigade and later as a major in a field ambulance and a casualty clearing station.

He returned to Australia in November, 1917. In 1919 he married Beatrice Holton, of Melbourne, and commenced practice at Heidelberg, Victoria.

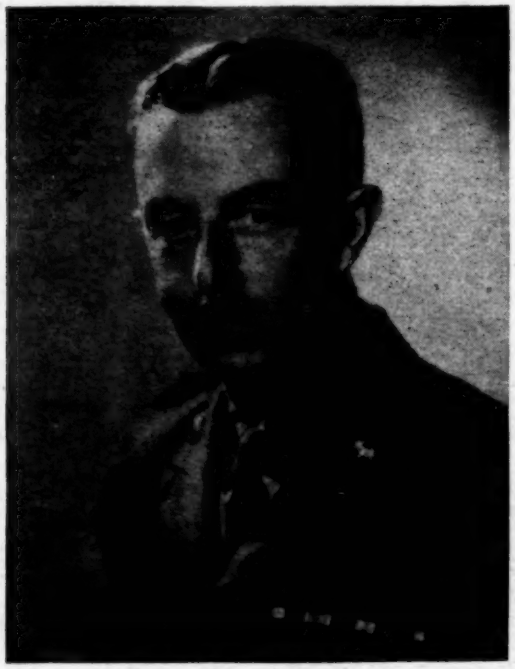
He went to England early in 1923 and did post-graduate work, obtaining the Fellowship of the Royal College of Surgeons, Edinburgh. Returning to Australia on account of ill health, he commenced practice at Mentone in 1926, which he relinquished in 1939 to practise as a consulting surgeon in Melbourne.

Always a keen soldier, Douglas Pigdon held a commission in the Fifty-First Infantry from 1910 to 1914 and rejoined the Militia in 1927, so that the outbreak of war in 1939 found him a lieutenant-colonel commanding the Fourth Field Ambulance. He immediately offered his services again for overseas service, but was refused an active appointment, to which his abilities would otherwise have entitled him, on the grounds of medical unfitness. Not to be denied, he was given command of the Second Convalescent Depot, which unit he brought to Malaya, arriving on April 25, 1941. Colonel Pigdon organized and trained this unit on lines very largely devised by himself and so successfully that the late Major-General Downes, who inspected the unit in the following July, said it was the most efficient convalescent depot he had seen in any part of the world. In September, 1941, Douglas Pigdon was promoted to the rank of colonel

and appointed to command the Thirteenth Australian General Hospital, newly arrived in Malaya. In this command he served until the capitulation of Singapore in February, 1942.

Shortly after the capitulation the Tenth and Thirteenth Australian General Hospitals and the 2/4 Casualty Clearing Station were combined as one hospital unit, under Japanese orders, and Colonel Pigdon was given command of what then became known as the Combined Australian General Hospital. He continued in this command until August, 1942, when, together with other senior officers, he was removed from his men and sent for imprisonment in Formosa and, later, Japan and Manchuria. He died in Moukden, Manchuria, on July 6, 1945, from a cerebral tumour.

COLONEL A. P. DERHAM writes: The foregoing statement represents the bare outline of a career which was infused with the spirit of a truly fine man. Douglas Pigdon will live in the memory of all who knew him as a doctor, a soldier, and a man, as one who never deviated in the smallest degree or under any circumstances from his own high standard of



honesty, gentleness and courage. He was a keen huntsman, a sport in which his wife shared to the full, in spite of many hard falls. It could be said of them both, in the spiritual as well as the literal sense, that "they rode straight to hounds". The writer had the privilege of being his friend at the university, in the first world war, in medical practice, in Malaya, and during the long dark years in captivity till the day he died. As the organizer and leader of two important medical units in Malaya, Douglas Pigdon gave evidence of outstanding military ability and very strong personal character. Space does not permit of a detailed description of his services which it is hoped will be adequately recorded in history. One incident must serve to illustrate his quality.

When the hospital he commanded had to be left outside the retreating British lines three days before the capitulation there was an attempt by certain British machine-gun units to take up positions too near the hospital. By the sheer force of his personality and possibly making use of his rank, Colonel Pigdon forced them to retire to a suitable distance from the establishment protected by the Red Cross emblem. He thus probably saved his patients and staff from the horrible massacre which was the fate of the Alexandra hospital under similar conditions on the opposite flank.

As a prisoner of war in Formosa, Douglas Pigdon worked for some months as a labourer in the fields, then as a consulting surgeon in the camp hospital. He later took over the medical care of all Australian personnel as well as much surgical work for all nationalities. This duty he continued until his final illness commenced in May, 1945. Under the appalling conditions of the brief Malayan campaign and the still more trying conditions in Changi prison camp, Douglas Pigdon behaved, as he had always done, like an officer on parade. He earned the complete trust of all his subordinates and his superiors. When his great responsibilities were taken from him by his captors, he joined a group of some three hundred Australian, British, American and Dutch senior officers in Formosa. He still retained his perfect balance, his gentleness, his dignity and his clear but unobtrusive courage. All his friends agree that there was no officer or man among us who did more to reveal that an Australian could rank with the best in the world in maintaining his normal high standard of personal conduct under conditions that tested the quality of the strongest and noblest men. He was a most generous friend. When we were approaching starvation his last biscuit and his last dollar were always shared with his friends, without ostentation, as a matter of course. At the time of his death all his fellow prisoners who knew him had learned not only to trust and admire him, but to love him, and under those conditions that was a high tribute indeed. He is survived by a widow, a son and two daughters.

CAPTAIN CHARLES HUXTABLE, Australian Army Medical Corps, Thirteenth Australian General Hospital, writes from the hospital ship *Oranje* at sea on September 12, 1945:

On first contact with the outside world after nearly four years of prisoner-of-war life, one must expect to become acquainted not only with joys but also with the sorrows of the years between. Yesterday at Darwin a group of officers who once belonged to the Thirteenth Australian General Hospital, Malaya, and who are now returning by the hospital ship *Oranje*, heard with genuine sorrow of the death in Manchuria of their late commanding officer, Colonel Douglas Pigdon (of Victoria). After the first six months of our imprisonment at Changi (Singapore Island) the Japanese selected a party consisting mostly of senior officers, and it fell to the lot of Colonel Pigdon to be sent overseas with them in August, 1942. The traditional Japanese secrecy allowed us no cue as to their destination. After ten months' command of the Thirteenth Australian General Hospital, through the days of Malayan peace, war, and finally of imprisonment, a series of disappointments and of hospital movements against a background of military disasters, Colonel Pigdon handed over all that for which he had worked so hard, and his manner of farewell was the model of good grace, fortitude and of high exhortation to duty. For his own fate he seemed to have little time for thought, as he left us; but for our difficulties and anxieties he was concerned to the last, and we felt at that time what has since been confirmed to the full, namely, that his grasp of the situation was both masterful and realistic. In our own small centre of the world conflict his voice seemed to rise above that of other men as he exhorted us to prepare for at least two years.

It is easy now to underrate the value of that advice and to forget that almost everyone of us at that time indulged occasionally in foolish rumour and false hope. Nor can we medical officers forget the trials of those early months of imprisonment. The frequent and hurried moves from place to place, when with inadequate transport we loaded our thousand sick and wounded into crowded trucks, loading around them, under them, and on top of them those essential supplies and stores which we dared not leave behind. For three weeks after the surrender we were uncertain as to our destination, or indeed as to our ultimate fate. Finally the crowded barrack-room "wards" with knee space only between the beds which we had brought with us—the lack of water supply and of lighting—so that the dysentery problem became for a time an insanitary horror (there were many hundreds of dysentery patients) and the darkness of the wards at night rendered the setting of suffering only more harrowing.

There was as well much outdoor work to be done, the carting of water and its carriage to upper floors, and the daily drawing of rations, all had to be done by hand-pulled trailers over long distances and up stiff slopes—and the digging of refuse pits and of latrines—all this type of work demanded fit men who had to be found by the hospital staff. This is not the place, nor is there the space to portray in detail the early tribulations of the sick and wounded, nor of those who strove to keep a hospital functioning. But mention has had to be made of some of the circumstances in order to convey some idea of the administrative problem and to give something of the atmosphere. It is apposite to mention that the general diet was a pound of rice a day and little else. What we had been able to bring of our own food

stores provided little more than flavouring for the rice. And so each individual had to contend with a physical lethargy of his own. Colonel Pigdon suffered much himself from the prevailing digestive troubles and became thin and drawn. But he made light of it and lost no day's work, nor did any Red Cross food or extra rations pass his lips. His principles in such matters were almost quixotic.

Amidst so much administrative responsibility and difficulty which on a conscientious man like Douglas Pigdon laid a heavy burden, he yet made time and found energy to be always "on deck". Both in the officers' quarters and around the precincts of the hospital, and in the wards his tireless figure was constantly to be seen. Few will forget the spare soldierly figure, the purposeful gait, never hurried but never leisurely. One never saw him rest, nor ever fuss or bluster. He set for himself a high standard of duty and he expected a high standard in others.

In his earlier days a combatant soldier, he preserved the best traditions of such, but his sense of duty and of discipline was tinctured by much kindliness. None who knew him will forget the friendly blue eyes and the quick smile. Behind the mask of the commanding officer appeared at times that sympathy for human suffering which marks both the true man and the true physician. On one such occasion he was addressing the medical officers after the departure in the battle smoke of our nursing sisters after they had been ordered to leave. He told us then that we medical officers must now take their place, that we must be both doctors and nurses in the care of our wounded and sick.

Then again, it was chiefly due to Colonel Pigdon that a procedure was carried out in the early days of the imprisonment which helped to save many lives. In his masterful way he brought about an arrangement within the hospital whereby the most sorely stricken patients throughout the wards were selected and moved into one place, about sixty men in all, where they were given special care and special food allowance from the precious stores which we had been able to bring with us from Singapore into our prison quarters.

Peace has come and our country has been reinstated in security, out of extreme if temporary jeopardy. Let us now count the cost and remember it, the cost not in money and machines, but in human lives—especially lives of great character—like this one.

GEORGE ALLAN.

We regret to announce the death of Dr. George Allan, which occurred on March 21, 1946, at Mosman, New South Wales.

Naval, Military and Air Force.

APPOINTMENTS.

The undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 39 and 49, of February 28 and March 14, 1946.

PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

Fixing Rates of Pay.—Surgeon Lieutenant-Commander Trevor Alexander McLean is paid the rates of pay and allowances prescribed in the Naval Financial Regulations for Surgeon Commander (on promotion) whilst acting in that rank, dated 8th February, 1946.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The appointment of Temporary Squadron Leader G. Roberts (253189) is terminated at his own request with effect from 3rd September, 1945.

The appointment of Temporary Flight Lieutenant A. G. Gibson (256822) is terminated on demobilization with effect from 29th October, 1945.

The appointments of the following Temporary Squadron Leaders are terminated on demobilization with effect from the dates indicated: W. Deane-Butcher (261286), 23rd October, 1945, H. A. F. Rofe (261259), 26th October, 1945.

The appointments of the following officers are terminated on demobilization with effect from the dates indicated: Temporary Squadron Leader, Acting Wing Commander D. T. Shortridge (281472), 24th October, 1945, Temporary Squadron Leader R. Greenless (281231), 25th October, 1945.

The appointment of Temporary Squadron Leader A. J. M. Dobson (252289) is terminated on demobilization with effect from 23rd October, 1945.

The appointments of the following officers are terminated on demobilization with effect from the dates indicated: Temporary Air Vice-Marshal T. E. V. Hurley, C.B., C.M.G., V.D., 6th December, 1945, Temporary Squadron Leader T. W. Vorrath (252750), Temporary Flight Lieutenant J. C. Trinca (256389), 2nd November, 1945.

Reserve: Medical Branch.

The appointment of Temporary Squadron Leader F. T. Humphrey (261369) is terminated with effect from 12th November, 1945.—(Ex. Min. No. 54—Approved 27th February, 1946.)

Temporary Group Captain P. J. Benjamin (251170) is transferred from the Active List with effect from 2nd October, 1945.—(Ex. Min. No. 58—Approved 6th March, 1946.)

Thomas Ernest Victor Hurley, C.B., C.M.G., V.D., is appointed to a commission with the temporary rank of Air Vice-Marshal with effect from 7th December, 1945.

Correspondence.

AN UNUSUAL CASE OF MALARIA.

SIR: The letter of Dr. R. F. Matthews, published on March 16, 1946, and describing a case of primary malaria in Orange, should remind the medical profession of the fact that the Anopheles mosquito does exist in New South Wales and that primary cases of malaria are not rare.

Two weeks ago a child of three years, who had never been out of Sydney, was admitted to one of my beds at Saint George District Hospital with pyrexia, pallor and splenomegaly (spleen reached the brim of the pelvis). Blood films at the hospital revealed a benign tertian malarial infection. The patient responded well to quinine and "Atebrin". Three other cases of primary malaria have been admitted to the same hospital in the past eighteen months.

The possibility of primary malaria in the differential diagnosis of pyrexia of unknown origin should be remembered for at least the next year or two, until the number of relapse cases among returned service personnel becomes reduced.

The suggestion that infected personnel during a relapse should sleep under mosquito nets to protect their neighbours from possible infection should be worth considering.

Yours, etc.,

"Craignish",
185, Macquarie Street,
Sydney.
March 19, 1946.

NORMAN CUNNINGHAM.

SPONDYLITIS ANKYLOPOIETICA.

SIR: Dr. Parr and Dr. Shipton are to be congratulated on producing such a comprehensive survey of the literature on the above disease and in giving us the results of their own experiences. One hopes that more medical men will be induced to adopt a similar spirit of inquiry towards the study of rheumatology. May I be permitted to make some comments as briefly as possible?

I find it rather difficult to accept Tyson's figures—10% incidence (I presume of all arthritis). I have never read any definite percentage figures of either type of spondylitis, but perhaps the incidence of the rheumatoid variety is, in America, higher than that of the osteoarthritic. In twenty years of rheumatology the cases I have seen of osteoarthritic spondylitis alone run well into four figures, but I very much doubt if I have seen thirty of ankylosing spondylitis; and the vast majority of these was already well advanced and ankylosed. Incidentally, as far as I can recollect, the position in London was the reverse—the Marie-Strümpell type being more prevalent.

Cause.—Cause is said to be unknown. The tubercular origin is widely held on the Continent. I once went to Aix-Les-Bains to see Forrestier on this subject, and I listened for over an hour to Lowenstein-Brill on the same

topic. Nevertheless, I still think that the cause is trauma—emotional, physical and endocrine. Infection, of course, may be secondary to any debilitated organism. I think that ankylosing spondylitis is merely a variety of rheumatoid.

Climate.—I am quite convinced that weather *et cetera*, although it may have no great effect on the origin of the disease, certainly does influence the sufferer. "Old Betty's bones are on the rack" *et cetera*! I myself have been advised by different authorities, in days gone by, to live in North Africa, South Africa, South California, at sea, and in Australia. I do know that in Sydney it is better for an arthritic to live on the ocean front or on the North Shore Line rather than on the harbour or near inland waters.

Calcium.—I have long since ceased to regard the serum calcium rate as being any sure indication of the disturbances of the calcium metabolism. The calcium phosphorus assimilation surely must be very much deranged.

Diet.—This is one of the most abused words in the English language, possibly because few English-speaking people know anything about food. To begin with, food is either slaughtered or grown solely with a view to market value, it is stored, frozen, chilled, transported until it is devitalized, and finally it is boiled or roasted until the little remaining good has disappeared. How many people, until very recently, boiled their vegetables with a pinch of sodium bicarbonate, and how many people cooked with mixed and often rancid dripping, instead of olive oil and butter (of course, when obtainable)? It is no wonder that as a race the English-speaking peoples are toothless and constipated. Now it would seem that a great deal of our food is going to be canned!

Nervous Factors.—These are, I think, most important and largely unrecognized. Emotional disharmony, worry, concealed anxiety neuroses and so on exercise a powerful influence on the whole being. We are and we feel in exact correspondence to our subconscious tranquillity. Emotional disturbances, long-continued, can and do produce physical tissue change, affect the endocrine system, circulation *et cetera*. In treating arthritis it is not enough to follow the Hippocratic doctrine and treat the whole body, one must also treat the mind. For this a psychological or, preferably, a psychoanalytic knowledge is essential.

Sacro-Iliitis.—I have read most of the works quoted by Dr. Parr and Dr. Shipton. I agree with the late Gilbert Scott that ankylosing spondylitis starts from the bottom of the spine and works up, just as I find that the osteoarthritic variety very often does the opposite. There are two points which rather interest me. One is the fact that radiologists frequently differ in their reports on the sacro-iliac joint. (I have before me three reports on one case of early sacro-iliitis and fibrositis from three well-known radiologists, and each report is quite different.) The other is that I have seen many cases of frank sacro-iliac arthritis with no signs of ankylosing spondylitis, but with marked osteoarthritic spondylitis. I have a small collection of over 200 complete skiagrams of the whole spine, and I think that I could say off-hand that most of them show sacro-iliac disease, but very few ankylosing spondylitis.

Clinics.—I am in wholehearted agreement with Dr. Parr on the question of clinics. For years, in my small way, I have urged their formation, but it has been sheer waste of energy. The truth is that no one gives the proverbial tinker's dam for the arthritic, and while physicians and surgeons without any specialized knowledge think that they can treat this disease with some injections of gold or vaccines, or some applications of short-wave or infra-red, then we shall have no clinics, and the reputation of the profession goes down the drain to the quacks. To treat arthritis is a long, wearisome and expensive business and often disappointing. Thorough treatment is mostly beyond the capacity of a community most of whose members are on the basic wage. Every hospital should have a full-time special department.

Early Treatment.—Essential. Nearly all arthritics come for treatment at an unnecessarily late stage. The second attack of fibrositis is the crucial point in all rheumatic diseases. Children with "growing pains" should be treated without delay.

Röntgen Therapy.—Judging by the literature, there is a considerable wave of optimism, especially in the United States of America, over the effects of Röntgen therapy in arthritis. Scott, of course, has made his adolescent spondylitis a feature. A refreshing writer, he seems to me to be somewhat carried away by enthusiasm. No one seems to know the exact effect of the X rays. Scott says metabolic and endocrine stimulant. Others say effect is on leucocytes, dilatation of capillaries, production of antibodies ("1945 Year Book of Radiology"). Another that it stimulates resistance (Hernaman Johnson, *British Journal of Radiology*, October, 1945). As to its efficiency, one says that it is the best single method of treatment known. Another says that physiotherapy is useless, another that physiotherapy and orthopædic measures are essential adjuvants and so on. Some radiologists to whom I have spoken were non-committal, some definitely against it, and the most enthusiastic said that the results were "fair to middling". Many medical men are rather prejudiced against it. My own opinion, and I have no practical experience of it, although I have seen patients who did not respond to either "deep" or "wide-field", is that it may give good results, but according to Scott only in such early cases that these would not often be encountered in hospital or private practice. I am quite convinced that as good results can be obtained in such cases by other means. But the great feature about it is that, apart from initial cost, it is cheap and within the financial reach of most patients. My own methods are based upon the use of the Wilde pyretic couch, or rather my own modification of it, with, of course, accessory forms of treatment. I have used the couch since Wilde brought it out in 1926 over 24,000 times, and I believe it to be the "de-luxe" form of basic therapy. In osteoarthritic spondylitis, neuritis and fibrositis, I have obtained results as good as or better than any of which I have ever heard. But it has one insurmountable drawback: it is time-consuming and uneconomic. Whereas with "wide-field" one should handle four or five patients an hour, with my methods each patient takes over an hour and a quarter. For that reason I have been interested in Röntgen therapy since I first read **Kahlmeter's article.**

I should like to see more from the pens of Dr. Parr and Dr. Shipton.

Yours, etc.,

231, Macquarie Street, Sydney,
E. Haslett Frazer.

March 18, 1946.

THE INTERVERTEBRAL DISK.

Sir: I have to thank Dr. Miller for his letter of February 22.

In a patient with diskogenic sciatica, Dr. Miller considers that by clinical methods it is not always possible to localize the lesion to one disk. At operation he therefore sometimes explores two spaces to localize the lesion.

In a patient with low back pain without sciatica, it is possible by clinical examination to localize the lesion to one disk or to one of two adjacent disks. At operation the lesion can be localized to one space by the mobility test, and it is then not necessary to explore two spaces.

Dr. Miller's statement, "One may well doubt the benefits accruing from operation on low back pain where localization cannot be accurate and operation is destructive", does not therefore bear critical analysis. In low back pain without sciatica, clinical localization is just as accurate, surgical localization by the mobility test is more accurate, and the operative approach through one space less destructive than in the diagnostic method and surgical approach advocated by Dr. Miller in sciatica.

It remains for the future to determine which is better—an "attack on the localized area of disk protrusion or softening" (as advocated by Dr. Miller, but with which many surgeons are not satisfied), or the removal of as much of the disk as possible.

Yours, etc.,

Yorkshire House, 194, St. George's Terrace, Perth.
Marion A. Radcliffe-Taylor.

March 20, 1946.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

The undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1939, of New South Wales, as duly qualified medical practitioners:

Boydell, William Herbert, M.B., B.S., 1945 (Univ. Sydney), Western Suburbs Hospital, Croydon.

Branster, Russell, M.B., B.S., 1945 (Univ. Sydney), Brisbane General Hospital, Brisbane.

Brown, Lyle Arthur, M.B., B.S., 1945 (Univ. Sydney), Lismore Base Hospital, Lismore.

Capel, Ross Bruce, M.B., B.S., 1945 (Univ. Sydney), Orange Base Hospital, Orange.

Carmody, Francis Spohn, M.B., B.S., 1945 (Univ. Sydney), Mater Misericordiæ Hospital, North Sydney.

Cerexhe, Francis Gordon Archer, M.B., B.S., 1945 (Univ. Sydney), Wagga Wagga Base Hospital, Wagga Wagga.

Cramer, John Earls, M.B., B.S., 1945 (Univ. Sydney), Tamworth Base Hospital, Tamworth.

Dimond, Charles Major, M.B., B.S., 1945 (Univ. Sydney), Wagga Wagga Base Hospital, Wagga Wagga.

Doctor, Benno Basil, M.B., B.S., 1945 (Univ. Sydney), Lithgow District Hospital, Lithgow.

Dunn, Eric Robert, M.B., B.S., 1945 (Univ. Sydney), Wollongong District Hospital, Wollongong.

Gilles, Nancy Catherine, M.B., B.S., 1945 (Univ. Sydney), Gympie Hospital, Gympie, Queensland.

Graham, Elizabeth Dinah, M.B., B.S., 1945 (Univ. Sydney), St. Joseph's Hospital, Auburn.

Hammond, Cathrena Constance, M.B., B.S., 1945 (Univ. Sydney), Parramatta District Hospital, Parramatta.

Hume, Ian Hamilton, M.B., B.S., 1945 (Univ. Sydney), Orange Base Hospital, Orange.

Hume, Patrick Huon, M.B., B.S., 1945 (Univ. Sydney), Albury District Hospital, Albury.

Jennings, Alan Norman, M.B., B.S., 1945 (Univ. Sydney), Grafton Base Hospital, Grafton.

Larbalestier, Peter Senis, M.B., B.S., 1945 (Univ. Sydney), Ryde District Soldiers' Memorial Hospital, Eastwood.

McTiernan, Mary Patricia, M.B., B.S., 1945 (Univ. Sydney), Lewisham Hospital, Lewisham.

Marrington, John Frederick, M.B., 1945 (Univ. Sydney), Cessnock District Hospital, Cessnock.

Moss, John Timothy St. Leger, M.B., 1945 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

O'Shea, Desmond Patrick Joseph, M.B., 1945 (Univ. Sydney), Lewisham Hospital, Lewisham.

Roberts, Arthur Edward, M.B., B.S., 1945 (Univ. Sydney), Lithgow District Hospital, Lithgow.

Rundle, Herbert Wesley, M.B., B.S., 1945 (Univ. Sydney), Maitland Hospital, Maitland.

Schmidt, Eric Egmont, M.B., B.S., 1945 (Univ. Sydney), Wallsend District Hospital, Wallsend.

Schuster, Elizabeth Mary, M.B., B.S., 1945 (Univ. Sydney), Broken Hill and District Hospital, Broken Hill.

Smith, Gordon Stewart, M.B., B.S., 1945 (Univ. Sydney), Marrickville District Hospital, Marrickville.

Taylor, Robert Gregory Darnley, M.B., B.S., 1945 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

Williams, John Robert Trevor, M.B., B.S., 1945 (Univ. Sydney), Dubbo Base Hospital, Dubbo.

Balean, Geoffrey Terrell, M.R.C.S. (England); L.R.C.P. (London), 1935, c.o. Prince Henry Hospital, Little Bay.

Morris, Maurice, M.B., B.S., 1938 (Univ. Melbourne), Women's Hospital, Crown Street, Sydney.

Favaloro, Felix Giovanni, M.B., B.S., 1937 (Univ. Melbourne), 543, Kiewa Street, Albury.

Schwarz, Frederick Charles, M.B., B.S., 1944 (Univ. Queensland), Wentworth.

TASMANIA.

THE undermentioned have been registered, pursuant to the *Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners:

Noack, Charles Hugh, M.B., B.S., 1941 (Univ. Adelaide), Longford, Tasmania.

Dobson, Arthur John Mandeville, M.B., B.S., 1937 (Univ. Melbourne), Hobart.

QUEENSLAND.

THE undermentioned has been registered, pursuant to the provisions of *The Medical Acts*, 1939 to 1940, of Queensland, as a duly qualified medical practitioner:

Short, Benjamin, M.B., B.S., 1939 (Univ. Sydney), Palm Island, Queensland.

Post-Graduate Work.

ANNUAL GENERAL COURSE IN SYDNEY: PROGRAMME FOR APRIL.

THE New South Wales Post-Graduate Committee announces that arrangements have been made for the following fixtures to be included in the April programme of the annual general course.

Lectures by Adrien Albert entitled "The History and Principles of Chemotherapy" will be given in the Stawell Hall, 145, Macquarie Street, Sydney, at 4.30 o'clock p.m., on Monday, Wednesday and Friday, April 8, 10 and 12, 1946.

A film afternoon will be held in the Stawell Hall, 145, Macquarie Street, Sydney, on Wednesday, April 17, 1946, at 4.15 o'clock p.m., when the following two films will be shown: "Riboflavin Deficiency" and "Nicotinic Acid Deficiency".

The annual general course, which is conducted by the Post-Graduate Committee, is available to all medical practitioners, the subscription being £1 1s. *per annum*. All service personnel are invited to attend free of charge. Inquiries should be made from the Secretary of the Post-Graduate Committee in Medicine, 131, Macquarie Street, Sydney, telephones BW 7483, B4606.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Bathgate, Donald Douglas, M.B., B.S., 1943 (Univ. Sydney), 1214, Pacific Highway, Pymble.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association:

Brown, Richard Ulick, M.B., B.S., 1942 (Univ. Sydney), "Belcoo", Merewether.

Commins, Lloyd Angus, M.B., B.S., 1940 (Univ. Sydney), 179, Wardell Road, Dulwich Hill.

Croese, Kelvin Xavier, M.B., B.S., 1944 (Univ. Sydney), "Greenleaves", Raymond Terrace.

Gates, Bruce Forsyth, M.B., B.S., 1937 (Univ. Sydney), NX169487, Captain, 3, Ozone Street, Cronulla.

Lee, Tom Herbert, M.B., B.S., 1942 (Univ. Sydney), 99, Spit Road, Mosman.

McNeil, Angus, M.B., B.S., 1941 (Univ. Sydney), Captain, 44, Plowman Street, North Bondi.

Musso, Fedele John Andrew Leo, M.B., B.S., 1945 (Univ. Sydney), 469, Forest Road, Penshurst.

Rowe, Denis Patrick, M.B., B.S., 1936 (Univ. Sydney), 8, Redan Street, Mosman.

Watson, Charles Rolleston, M.B., B.S., 1942 (Univ. Sydney), 11A, Silex Road, Mosman.

Barker, Hilda, L.R.C.P., L.R.C.S., 1937 (Edinburgh), L.R.F.P.S., 1937 (Glasgow), D.O.M.S., 1943 (London), c.o. 14, Wallace Street, Waverley.

Cramer, John Earls, M.B., B.S., 1945 (Univ. Sydney), Tamworth Base Hospital, Tamworth.

Bellemore, Charles Francis, M.B., B.S., 1943 (Univ. Sydney), St. Vincent's Hospital, Darlinghurst.

THE FEDERAL MEDICAL WAR RELIEF FUND.

THE following contributions to the Federal Medical War Relief Fund have been received.

South Australia.

B. S. Hanson, H. A. McCoy, £100.

G. H. Burnell, B. E. Wurm, £50.

B. W. Wibberley, £26 5s.

A. Kyle Gault, G. R. West, £25.

B. H. Swift, D. L. Barlow, E. B. Thomas, S. Pearlman, £21.

G. H. B. Black, £20.

E. Britten Jones, H. F. Altman, N. R. Bennett, R. J. de N. Souter, D. R. W. Cowan, W. H. Baudinet, C. P. Juttner, J. S. Covernton, W. M. Irwin, K. F. Cooper, A. H. E. Watson, E. F. West, Colin Gurner, L. R. Mallen, Phoebe Chapple, £10 10s.

W. D. Ackland Horman, R. L. Thorold Grant, F. E. Terrill, A. D. Byrne, J. F. Drew, Mary T. Burnell, F. Ray Hone, R. John Verco, F. L. and A. W. Wall, E. Flaum, W. J. Betts, N. D. Crosby, Bronte Smeaton, M. W. Fletcher, H. H. Formby (first contribution), G. T. Gibson, H. W. Wunderly, F. B. Leditschke, J. R. Thompson, Dorothy Adams, C. H. Schafer, £10.

V. de P. Rice, £6 6s.

A. W. Welch, A. J. Hakendorf, W. R. C. Morris, W. G. Norman, M. V. Samuel, R. V. Pridmore, P. G. Jay, H. Gilbert, C. T. Piper, £5 5s.

W. A. Hunter, H. S. Newland (first contribution), A. R. Southwood (first contribution), J. L. Hayward, J. C. Yeatman, C. T. de Crespigny (first contribution), Freda E. Gibson, G. Wien Smith, £5.

H. C. Robjohns (first contribution), C. W. G. Woods, J. Roland Beard, C. N. Gurner, H. A. Goode, £3 3s.

M. G. Jansen (first contribution), £3.

R. G. de Crespigny, R. A. Burston, R. T. Steele, R. de G. Burnard, W. R. Clark, M. R. Gold, £2 2s.

K. J. Basedow, £2.

C. T. James, P. O. Flecker, R. A. Russell, £1 1s.

J. R. Coates (first contribution), £1.

Total: £978 16s.

Amount previously acknowledged: £3,897 7s. 3d.

Grand total: £4,876 3s. 3d.

Notice.

DR. T. HEALE, honorary librarian at Saint Vincent's Hospital, Melbourne, is anxious to obtain for the library a copy of *The Journal of Pathology and Bacteriology* for January, 1944. The copy for the library did not arrive and the publishers are unable to supply a copy as the stock is exhausted. Dr. Heale would like to hear from any reader who has a copy with which he would be willing to part.

Medical Appointments.

IN accordance with *The Health Act*, 1911-1944, of Western Australia, Dr. T. Godlee has been appointed as Medical Officer of Health of the Cue District Road Board, Dr. O. N. Walker as Medical Officer of Health of the Plantagenet Road Board, and Dr. K. W. Hodby as Medical Officer of Health of the Nedlands Road Board, Western Australia.

Dr. C. E. Winston has been appointed a member of the Nurses' Registration Board, pursuant to the provisions of section 3 of the *Nurses' Registration Act*, 1924-1932, of New South Wales.

Dr. H. McI. Birch has been appointed Honorary Director and Dr. W. A. Dibden, Dr. K. F. Edwards, Dr. S. B. Forgan and Dr. J. D. Fotheringham Honorary Assistants to the Director of the Psychiatric Clinic, Royal Adelaide Hospital, Adelaide.

Dr. L. G. Tassie and Dr. B. G. Johnston have been reappointed members of the Medical Board, Port Pirie, South Australia, under the provisions of the *Workmen's Compensation Act*, 1932-1944.

Dr. C. R. Boyce has been appointed medical superintendent, Mental Hospital, Toowoomba, Queensland, in pursuance of the provisions of *The Public Service Act*, 1922 to 1924, and *The Mental Hygiene Act of* 1939.

Books Received.

"Demonstrations of Operative Surgery for Nurses", by Hamilton Bailey, F.R.C.S.; 1945. Edinburgh: E. and S. Livingstone Limited. 8½" × 5½", pp. 356, with many illustrations, some of them in colour. Price: 21s., postage 7d.

"A Manual of Tuberculosis, Clinical and Administrative", by E. Ashworth Underwood, M.A., B.Sc., M.D., D.P.H., with an introduction by Professor J. R. Currie, M.A., M.D., F.R.C.P., D.P.H.; Third Edition, largely rewritten; 1945. Edinburgh: E. and S. Livingstone Limited. 7½" × 5", pp. 538, with many illustrations. Price: 15s., postage 7d.

"Illustrations of Regional Anatomy", by E. B. Jamieson, M.D.; Complete Volume, Seven Sections; Sixth Edition; 1946. Edinburgh: E. and S. Livingstone Limited. 8" × 6", pp. 348, illustrations in colour. Price: 75s., postage 10d.

"Principles and Methods of Animal Breeding", by R. B. Kelley, D.V.Sc.; 1946. Sydney, London: Angus and Robertson Limited. 8½" × 5½", pp. 304. Price: 15s.

Diary for the Month.

APRIL 2.—New South Wales Branch, B.M.A.: Council.
APRIL 3.—Western Australian Branch, B.M.A.: Council Meeting.
APRIL 3.—Victorian Branch, B.M.A.: Branch Meeting.
APRIL 4.—South Australian Branch, B.M.A.: Council Meeting.
APRIL 5.—Queensland Branch, B.M.A.: Branch Meeting.
APRIL 9.—Tasmanian Branch, B.M.A.: Ordinary Meeting.
APRIL 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
APRIL 9.—New South Wales Branch, B.M.A.: Organization and Science Committee.
APRIL 12.—Queensland Branch, B.M.A.: Council Meeting.
APRIL 16.—New South Wales Branch, B.M.A.: Medical Politics Committee.
APRIL 16.—New South Wales Branch, B.M.A.: Ethics Committee.
APRIL 16.—New South Wales Branch, B.M.A.: Clinical Meeting.
APRIL 17.—Western Australian Branch, B.M.A.: General Meeting.
APRIL 18.—Victorian Branch, B.M.A.: Executive Meeting.
APRIL 18.—South Australian Branch, B.M.A.: Council Meeting.
APRIL 24.—Victorian Branch, B.M.A.: Council Meeting.
APRIL 25.—South Australian Branch, B.M.A.: Scientific Meeting.
APRIL 26.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All Public Health Department appointments.

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